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DEVELOPING A MULTI-GROUP MODERATED MODEL TO PREDICT AND
COMPARE COMMITMENT IN GEOGRAPHICALLY CLOSE AND
LONG-DISTANCE RELATIONSHIPS

Fredrick Andrew Eichler

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Despite many recommendations to assess the role of the social exchange theory and the interdependence theory in long-distance relationships, few researchers have investigated if the roles of satisfaction, alternatives, and investments in a relationship influence commitment differently for individuals in long-distance relationships compared to individuals in geographically close relationships. I hypothesized that trust, desire for frequent sex, satisfaction, alternatives, and investment in the relationship have unique predictive relationships in commitment depending on relationship proximity and gender. In two studies, I first tested prior research investigating the role of negative affect in relationship commitment. I extended this research and found that a preference for frequent sex and trust for one's partner were substantially better predictors of relationship commitment compared to negative affect and components of relational security. In Study 2, I developed a model to predict commitment using satisfaction, quality of alternatives, relationship investments, preference for frequent sex, and trust. This model was tested between men and women in geographically close and long-distance relationships and

revealed significantly different predictive relations between the proximity (i.e., geographically close vs. long-distance) and gender (i.e., men and women) condition. Specifically, satisfaction and trust predicted commitment differently between the models for women in both geographically close and long-distance relationships and men in geographically close relationships. Men in long-distance relationships required a separate model where the quality of alternatives did not predict relationship commitment and a preference for frequent sex mediated trust and commitment. My findings not only clarified the role of interdependence theory for long-distance relationships couples but also identified how factors of sex influenced the interdependence theory and relationship commitment for both men and women in geographically close and long-distance relationships.

Keywords: Long-Distance Relationships, Structural Modeling, Gender Differences, Geographic Separation, The Investment Model, Sex, Trust, Commitment

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COMPARE COMMITMENT IN GEOGRAPHICALLY CLOSE AND
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FREDRICK ANDREW EICHLER

A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of

MASTER OF SCIENCE

Department of Psychology

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2014

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CHAPTER I

REVIEW OF RELATED LITERATURE

Statement of the Problem

Many have heard the adage, “distance makes the heart grow fonder”; despite the saying, many individuals cringe at the prospects of initiating or maintaining a long-distance relationship. Sahlstein (2004) and Helgeson (1994) both found that people often believe that increased distance makes the relationship exponentially more difficult and thus more prone to failure compared to geographically close relationships. Nonetheless, many long-distance relationships survive and thrive, an outcome that defies the traditional assumptions that people need to be geographically close to foster a romantic relationship (Stafford , 2005) and that couples need to interact with face-to-face contact to develop shared meaning for their relationship (Duck, 1994; Duck & Pittman, 1994). Furthermore, Guldner (2003) found that long-distance relationships are becoming an increasingly feasible option for dating couples as growing access to technology increases communication, which can minimize the felt distances between the partners. As access to technology and communication mediums increases, there is an increasing urgency for researchers and lay people alike to gain a better theoretical understanding of what factors help or harm long-distance relationships.

Many researchers have examined long-distance relationships from apparently atheoretical perspectives. For instance, Cameron and Ross (2007) assessed the role that

negative affect (e.g., depression, low self-esteem, and pessimism) played on stay/leave behavior for long-distance relationships. Although they found that increases in negative affect predicted the dissolution of a long-distance relationship for men in an undergraduate sample, it remains unclear how such findings bear upon predominant relationship theories (e.g., attachment theory, social-exchange theory, interdependence theory, etc.). In addition, Kelmer, Rhoades, Stanley, and Markman (2013) reported that in a nationally representative sample individuals in long-distance relationships reported significantly more love for their partners, fun with their partners, conversation quality, and dedication as well as less psychological aggression, and –surprisingly– less likelihood of to breakup compared to couples in geographically close relationships. However, it is unclear what theoretical mechanisms may account for observed patterns.

Only recently have researchers begun examining long-distance relationships using established psychological theories. For instance, using Bowlby's (1969/ 1982) attachment theories, DeWall and colleagues (2011) found that avoidant attached individuals when separated from their partners were more likely to engage in infidelity. Furthermore, Lee and Pistole (2012) assessed how Bowlby's attachment styles and self-disclosure predicted relationship satisfaction in long-distance and geographically close relationships. They found that insecure attachment predicted idealization and satisfaction more for participants in long-distance relationship than participants in geographically close relationships. Additionally, Rusbult, Martz, and Agnew's (2007) investment model's satisfaction, alternatives to the relationship, and relationship investments were used by Pistole, Roberts, and Mosko (2010) to predict commitment in geographically close and long-distance relationships. Pistole and colleagues found that different attachment styles

as well as the satisfaction, alternatives to the relationship, and relationship investment predicted commitment and relationship persistence differently for individuals in proximally close and long-distance relationships. With increased application of established relationship theory, researchers are better equipped to examine how the many underpinning factors promote or hinder persistence to a long-distance relationship. Although scholars continue to generate research on long-distance relationships, there is a gap in the literature examining how the many differences between long-distance and close proximity influence the investment model (Rusbult, Martz, & Agnew, 2007) and how these factors potentially affect commitment to one's partner.

Defining Long-Distance Relationships

Before delving into the study of long-distance relationships, it is necessary to understand what a long-distance relationship actually is. Unfortunately, there is presently no universally accepted definition for what constitutes a long-distance relationship. Indeed, Stafford (2005) states that, "long-distance relationships defy precise definitions" (p. 7). Early long-distance relationship researchers assessed the effects of overseas military deployment, which often mandated the couple's separation for several months with limited communication with each other (Carlson & Carlson, 1984; Hunter, 1982). More recent research distinguishes long-distance relationships from geographically close relationships via the geographic separation between the partners' cities (Helgeson, 1994), the time and distance to travel between the partners (Know, Zusman, Daniel, & Barantley, 2002), and the miles separating the couple (Carpenter & Know, 1986; Holt & Stone, 1988). Other researchers advocated that long-distance relationships may be measured by the number of nights spent together throughout the week in addition to other

criteria. For example, Holmes (2004) described ‘distance relationships’ as couples who average two or more nights apart from each other throughout the week. Rabe (2001), comparatively, described long-distance relationships as ‘commuter relationships’. She characterized these relationships based on the couples spending four or more evenings apart from each other during a typical week. Additionally, Cameron and Ross (2007) used participants’ telephone area codes to distinguish and verify long-distance relationships from geographically close relationships.

Although asking participants metrics such as travel times to one’s partner, physical distance from one’s, or proportion of nights spent together offer researchers an objective measure of the relationship, these metrics may not directly equate to the couple’s endorsement that their relationship is actually a long-distance relationship. For instance, participants have reported being in geographically close relationships despite being separated by 80 miles (Dellmann-Jenkins et al., 1994) or 250 miles (Van Horn, et al., 1997). To alleviate this issue and to simplify the categorization of long-distance relationships, one of the most widely used methods for identifying if an individual is in a long-distance relationship is by simply asking participants if they consider their relationship to be “long distance” (Alyor, 2003). This categorization is often accomplished by asking items like, “Do you consider this a long-distance relationship?” (Van Horn, et al. 1997, p. 27) or comparatively, “My partner lives far enough away from me that it would be difficult or impossible for me to see him or her every day” (Glunder & Swensen, 1996, p. 316; for example also see Stafford & Merolla, 2007). For the purposes of this study, any future mention of long-distance relationships refers to an individual’s self-defined understanding of being in a long-distance relationship. This

characteristic of the relationship will be measured using Pistole and Robert's (2011) long-distance relationship index in addition to participants self-categorizing themselves into either geographically close or long distance.

The Investment Model

Rusbult, Martz, and Agnew (1998) developed the investment model scale from the initial investment model (Rusbult, 1980) and interdependence theory (Kelly & Thibaut, 1978; Thibaut & Kelley, 1959) insofar as they sought to develop a measure assessing how much an individual depends on and needs a given relationship. In this case, interdependence theory and the investment model explore the unique intricacies of a given relationship rather than relying on an individual's dispositional characteristics, as seen in attachment theory (Bowlby, 1969/ 1982). At the core of the interdependence model lays the dependency on one's partner to fulfill relationship needs (Rusbult & Van Lange, 1996) as well as satisfactory and beneficial outcomes for the individuals involved in the relationship (Le & Agnew, 2003). These concepts are consistent with Thibault and Kelly's (1959) views. Thibault and Kelly found that romantic partners compare the current relationship quality with their ideal relationship expectations and other possible alternatives that may fulfill their relationship needs (known as a *comparison level* using interdependence terminology). As a relationship progresses, the partners begin to influence the level of dependency on each other.

Although dependency is the degree to which a person relies on another person (Le & Agnew, 2001), *commitment* is a subjective measure of the reliance on one's partner (Rusbult & VanLange, 1996). Commitment is an intention to maintain and persist in a relationship, focusing on the long-term orientation of the relationship and including a

psychological state of attachment to one's partner (Agnew, Van Lange, Rusbult, & Langston, 1997; Arriaga & Agnew, 2001; Rusbult, Martz, & Agnew, 1998). Higher levels of commitment are associated with higher levels of pro-relationship behaviors including - but not limited to - higher degrees of inclusion of other in self (Agnew, Van Lange, Rusbult, & Langston, 1997), willingness to sacrifice and accommodate one's partner (Etcheverry & Le, 2005), forgiveness of a partner's transgressions (Pronk, Karremans, Overbeek, Vermulst, & Wigboldus, 2010), and reassuring a partner's feelings (Weigel, 2008), disparagement of attractive alternatives (Miller, 1997). Increased commitment is also significantly associated with decreases in extra-dyadic sexual inclinations (McAlister, Pachana, & Jackson, 2005) and decreased sexual anxiety with the current partner (Impett & Peplau, 2002). According to the investment model, three primary factors affect overall commitment to a relationship: *satisfaction*, *alternatives*, and *investment*. Individuals with (a) higher levels of satisfaction in the relationship (b) relatively few attractive alternatives to the relationship and (c) higher levels of tangible and intangible investment in the relationship typically are more likely to endorse higher levels of commitment to one's partner and thus behave in ways that forgo one's self-interest in pursuit of the relationship's maintenance.

Satisfaction, the positive feelings derived from a given relationship, is the strongest predictor of commitment to a relationship (Le & Agnew, 2003). Under the interdependence theory, an individual experiences relationship satisfaction when the benefits for continuing the relationship outweigh the negative perceived consequences associated with maintaining the relationship. Furthermore, a partner's fulfillment of an individual's "intellectual, compassionate, and sexual needs" affects the degree of

satisfaction derived from the relationship (Rusbult, 1980, p. 359; Rusbult, Martz, & Agnew, 1998). It is important to note, however, that some research assessing sexual needs in long-distance relationships may have inadvertently overlooked this point. Pistole, Roberts, and Mosko (2010) claim that, “[the investment model] theory does not include elements that require frequent physical contact (e.g., sexual intimacy), which is not possible in [long-distance relationships]” (p. 146). In lieu of using the satisfaction subscale, Pistole, Roberts, and Mosko used Spanier’s (1976) Dyadic Adjustment Scale to mitigate the role of sex in long-distance relationships.

A paradox emerges between geographically close relationships and long-distance relationships when assessing relationship satisfaction. Despite the ambiguity and uncertainty often associated with long-distance relationships (Lydon, Pierce, & O'Regan, 1997), Stafford and Melorra (2007) report that couples in long-distance relationships often report higher degrees of satisfaction compared to geographically close participants. This finding may be attributed to increased levels of idealization of one’s partner. Although these findings defy cultural and professional expectations that couples need to be geographically close to experience relationship satisfaction (Stafford, 2005), many researchers reported finding long-distance relationship satisfaction as either equal to or greater than the satisfaction derived from geographically close relationships (Glunder & Swensen, 1995; Lydon, Pierce, & O’Regan, 1997, Schwebel, Dunn, Moss, & Renner, 1992; Stafford & Reske, 1990; Van Horn et al., 1997). Researchers have explored possible reasons why long-distance couples report equal or great levels of relationship commitment. For example, Gardner (2006) explored the role of cognitive dissonance on satisfaction in geographically close and long-distance relationships. Gardner found that

individuals with higher levels of cognitive dissonance in long-distance relationships experienced smaller decreases in satisfaction over time. These differences, however, were not significant for participants in geographically close relationship or in control condition (no/ low dissonance groups). Comparatively, Lee and Pistole (2012) found that idealization – for both geographically close and long-distance relationships – predicted overall satisfaction in the relationship. Lee and Pistole explained that an individual's attachment style interacted with the proximity of the relationship to affect idealization and satisfaction. There were no differences, however, between the predictive relations of idealization and satisfaction for individual in geographically close or long-distance relationships. Furthermore, increased idealization for one's partner while transitioning from long-distance to a geographically close relationship leads to a higher risk of relationship termination (Stafford & Melorra, 2007).

Although satisfaction predicts commitment and persistence in the relationship, the quality of attractive alternatives attenuates this relation (Le & Agnew, 2003). Geographically close alternatives should pose the greatest threat to a partner's commitment in long-distance relationship because the allure of a proximally close partner offers greater physical and platonic temptations. The temptation to terminate the relationship increases proportionally with increases in nearby alternative partners. For instance, DeWall and colleagues (2011) found that participants with avoidant attachment style in geographically close relationships were more inclined to take interest in alternatives and positively endorse infidelity. It is logical to assume that increased distance between partners might promote an “out of sight, out of mind” attitude and make partners more inclined toward infidelity or relationship termination. Drigotas, Safstrom,

and Gentilia (1999) found, however, that increases in commitment reduce a person's appraisal of attractive alternatives. Drigotas and colleagues further speculated although individuals in long-distance relationships have more opportunities for infidelity, the commitment they have in the relationship might mitigate the likelihood to cheat with alternative partners. This reduced appraisal of alternatives may be due in part to inflated idealization of one's current partner (Stafford, 2005); nonetheless, infidelity and temptation to cheat on one's partner do not appear to run rampant in long-distance relationships nor present any major detriments to the relationship (Gerstel & Gross, 1982; Guldner, 1996). Other researchers have found that missing one's partner mediates and strengthens the relationship between commitment and reduced cheating behaviors (Le, Korn, Crockett, & Loving, 2010). Although alternatives to the relationship do not appear to be detrimental specifically to long-distance relationships, many alternative partners to the current relationship continue to affect romantic relationship in general.

Investment in the relationship, which is the third antecedent to commitment, measures the tangible and intangible components of the relationship that would be jeopardized or relinquished completely upon a relationship's termination (Rusbult, 1980; Le & Agnew, 2003). For instance, investment in the relationship measures efforts and pro-relationship behaviors like accommodations for one's partner and a willingness to sacrifice (Etcheverry & Le, 2005). Investments also involve the interconnectedness between one's identity and the identity of his or her partner (Agnew, VanLange, Rusbult, & Langston, 1998) as well as shared activities and friends. Riggio and Weiser (2008) found that appraisal of investments in the relationship were highly related to positive attitudes towards marriage amongst dating couples. If the relationship were to end, a

partner would forego not only the time and possible financial investments for the relationship (Rusbult, Drigotas, & Verette, 1994) but also compromise one's identity and friendships.

Investments in long-distance relationships present an interesting dynamic as previous research indicates that increases in relationship investments lead to greater relationship stability (e.g., persistence in the relationship and reduced termination of the relationship) compared to geographically close couples (Stafford, 2005). Again, given the separation between the couples, it is reasonable to assume that a couple has limited day-to-day interactions and thus limited opportunities to invest in the total relationship. According to Duck (1994) and Duck and Pittman (1994), these day-to-day interactions are necessary to create a shared meaning in the relationship. The shared meaning may extend to the valuation of the relationship and the couples' willingness to invest in the relationship. Researchers have found that long-distance relationship couples perceive logistical components of the relationship, such as time devoted to phone calls, commuting time, and associated expenses, as significant investments in the relationship. These intangible investments of time may serve as a substitute for finite and tangible investments made by geographically close relationships (Magnuson & Norem, 1999; Sahlstein, 2004). Additionally, couples in long-distance relationships report accruing significantly more subjective and objective costs (Gardner, 2006). For example, a subjective cost would be forgoing time with close friends to take a phone call with one's partner. An objective cost might be increase travel expenses. These appraisals of costs and investments in the relationship may account for the persistence of pro-relationship behaviors. Ultimately, the motivation to invest in a relationship stems from one's

fundamental need to relate with that person (O'Brien et al, 2009). Researchers have seldom studied the direct role of investments to commitment in long-distance relationships.

Only Pistole, Roberts, and Mosko (2010) assessed long-distance relationships using the investment model in its entirety. When controlling for avoidant attachment style, anxiety, sensitivity, and cooperation, they found that satisfaction and investments in the relationship significantly predicted commitment for long-distance couples. Surprisingly, the couples' appraisal of alternatives to the relationship failed to predict commitment to their relationships. When applying the same analysis to geographically close couples, Pistole and colleagues found that satisfaction positively predicted commitment and alternatives negatively predicted commitment. Surprisingly, investment in the relationship did not predict commitment for geographically close couples. Although their reported differences for the investment model are promising to explore further, they acknowledge that their sample size was relatively small (i.e., 61 participants in geographically close relationships and 77 participants in long-distance relationships) and that additional studies should be conducted to explore the robustness of their findings.

Pistole, Roberts, and Mosko's (2010) research filled the initial gap in the literature assessing the predictive role of all the investment model bases on commitment. Several limitations and possible improvements can be amended and built upon in future research. First, their sample was comprised predominantly of white women; thus, they were unable to analyze gender differences consistent with prior research (Cameron & Ross, 2007). Second, the mean age for the sample was 23.63 years ($SD = 7.25$); thus the findings may

not be representative of older individuals or individuals outside of college. Third, the goal of their research was only to provide a preliminary analysis of the predictive validity that satisfaction, alternatives, and investments have on the relationships. Many of these limitations are reoccurring themes throughout much of the long-distance relationship literature. There is a substantial need for long-distance relationship researchers to extend their sampling frames to include larger, more diverse samples. This process would increase the overall generalizability of the findings beyond the typical college student population help to cross-validate the results.

Trust

As stated by Wieselquist, Rusbult, Foster, and Agnew (1999), “the true test of a relationship arises when...partners encounter dilemmas involving conflicted interactions, incompatible preferences, or extrarelationship temptation” (p. 942). Without trust and commitment, the relationship will crumble under these dilemmas. As an individual’s commitment grows, partners often forgo their individual self-interests and rely on the other person in hopes of improving or maintaining their current relationship (Etcheverry & Le, 2005, Etcheverry, Le, & Charania, 2008, Rusbult, Olsen, Davis, & Hannon, 2004). Trusting one’s partner increases dependency on the relationship. This increase in trust then increases commitment, which in turn increases other pro-relationship behaviors (Wieselquist, et al., 1999). Increased trust and overt pro-relationship behaviors then influences the other partner’s trust and behaviors, which create a cyclical transformational process between the partners.

Trust requires three primary components: predictability, dependability, and faith (Holmes & Rempel, 1989). Predictability reflects consistent behavior from one’s partner;

dependability requires that the partner is reliable and honest, and faith is the conviction that one's partner will work towards the overall wellbeing of the relationship. Robinson (1996) later defined it as "expectations, assumption, or beliefs about the likelihood that another's future actions will be beneficial, favorable, or at least not detrimental to one's interests" (p. 576). At the core of trust lies the inherent belief that one's partner will refrain from self-serving behaviors and maintain the relationship (Murray & Holmes, 1997; Murray, Holmes, Griffin, Bellavia, & Rose, 2001) despite possible risks. Other researchers have conceptualized trust as *relational security* (Reis, Clark, & Holmes, 2004) and have argued that it is a necessity for progress in all relationships (Righetti & Finkenauer, 2011).

Challenging situations to the relationship, such as increased distance between partners, often increase uncertainty and thus promote perceived threats to the relationship, which may lead to the relationship's termination (Aylors, 2003). It would appear, though, that trust in one's partner should help stabilize commitment in the relationship. For instance, Koranyi and Rothermund (2012) find that levels of trust automatically increased and significant interactions emerged when college participants were primed in an experiment with the thought of initiating a long-distance relationship and asked about their general attitudes towards long-distance relationships. These findings suggest that stress on a relationship increases trust – particularly when confronted with a long-distance relationship. Koranyi and Rothermund (2012) do caution that it is possible that these mechanisms of trust in stressful situations will not work when future commitment with one's partner is reduced (Brandtstadter & Rothermund, 2002). Nonetheless, their findings suggest that relationships under duress need increased levels

of trust to maintain commitment. Researchers, however, have yet to investigate the relation between trust and satisfaction, appraisal of attractive alternatives, and investment in long-distance relationship relationships.

Sex and Long-Distance Relationships

Geographic separation of a couple drastically affects a couple's sex life; whereas research on long-distance relationship is often difficult to come by, research investigating the role of sex in long-distance relationships, however, is practically non-existent. Logically, sexual intercourse and other forms of close physical intimacy cease when the partners are apart. In any case, engaging in sexual intercourse is a means of sharing and expressing thoughts, intimacy, feelings, and desires for the intent of sexually arousal (Bagarozzi, 2001). Many partners use sex to measure the quality of their relationship (Sprecher, 2002); in some cases, sex dictates the quality of the entire relationship (Henderson-King & Veroff, 1994). Therefore, the importance of sex in the relationship ought to apply equally for couples in long-distance relationships compared to those in geographically close relationships.

Despite Guldner's (2003) report that "the distance and [sexual] deprivation leads to very intense couplings upon reunion and an exploration of new ways of being sexual while apart" (p. 119); little is known about the actual dynamics of sex in long-distance relationships beyond reunions or 'the honeymoon phase.' These honeymoon phases are often short stints of time that couples are together and often engage in many sexual activities before departing from one another. Although mainstream magazines like *Cosmopolitan* and *Men's Health* feature tips for readers about maintaining a sex-life with a distant partner (e.g., regular Skype sessions, telephone sex, 'sexting', sending erotic

emails, dirty talk, etc.), the recommendations are anecdotal, non-scientifically based, and offer few recommendations about engaging in sex while the couples are briefly together.

As Pistole, Roberts, and Mosko (2010) found that the satisfaction, alternatives, and investments in the relationship predicted commitment differently between geographically close couples and couples in long-distance relationships, it is plausible that the role of sex and sexual satisfaction may interact differently in long-distance relationships. Given that Sprecher (2002) found that couples use sex to determine the quality of their relationships, it is reasonable to believe that sex – or lack of sex – would significantly affect individuals in long-distance relationships. Previous research has found that decreases in sexual satisfaction were associated with increased likelihood to terminate the relationship amongst married couples (Oggins, Leber, & Veroff, 1993; Veroff et al., 1995). Therefore, as the physical distance makes sexual contact impossible, the reduced sexual satisfaction and diminished ability to have sex could account for reduced commitment to the long-distance relationships. Furthermore, pre-marital couples experience changes in commitment, love, and overall relationship satisfaction when they experience changes in sexual satisfaction (Sprecher, 2002). To simulate these differences, I addressed how preference for frequent sex with one's partner relate and differ between those in geographically close and long-distance relationships.

Although Guldner (2003) reported that many couples are sexually active upon reunion, he also reports that many couples experience some sexual dysfunction or feel hesitant to engage quickly in sex shortly after reuniting. Specifically, men and women may feel pressured to have sex to satisfy one's partner in hopes of maintaining the relationship. Træen and Skogerbø (2009) described this phenomenon as *obligatory*

consensual sex. For some, having obligatory consensual sex is perceived as a pro-relationship behavior. In a sense, obligatory consensual sex is a partner's willingness to engage in sexual acts to satisfy his or her partner's sexual needs. In addition, when women were given a hypothetical relationship situation about their current relationships, commitment to the relationship correlated highly with willingness to engage in consensual and initially unwanted sex (Impett & Peplau, 2002). Furthermore, Traeen and Skogerbø (2009) found that engaging in unsolicited consensual sex is perceived as a means of communication for couples (e.g., they care about maintaining the relationship, thus they will consent to unsolicited sex when the partner wants and initiates sex). Couples may perceive engaging in obligatory consensual sex as willingness to sacrifice for the maintenance of the relationship, which has shown to correlate with commitment in relationships (Etcheverry & Le, 2005). Research also alludes to issues with initiating sex when long-distance relationship couples reunite (Guldner, 2003). Considering that couples who reunite may feel more pressured to have sex compared to partners in geographically close relationships, instances of obligatory consensual sex may be higher for couples in long-distance relationships. Thus, instances of obligatory consensual sex may differentially predict commitment and satisfaction between geographically close and long-distance partners.

Hypotheses

For this research, I sought to accomplish several goals: (a) to replicate conceptually the findings of Cameron and Ross (2007) which assesses the role of negative affect and relational security on stay/leave behavior, (b) investigate the role that trust plays on commitment when adding satisfaction, appraisal of attractive alternatives,

and investments in the relationship for people in long-distance relationships (c) examine the role that preferences for frequent sex and obligatory consensual sex play on the relationship, and (d) test a model for how trust, satisfaction, alternatives, investment, and preference for frequent sex predict commitment and for men and women in long-distance relationships and geographically close relationships (see Figure 1).

The model begins with overall satisfaction, alternatives, and investments in the relationship as the primary predictors of commitment. The latent factor for overall satisfaction has two observed factors: preference for frequent sex and general relationship satisfaction. I make this distinction because sexual satisfaction is a unique component from overall relationship satisfaction. Although sexual satisfaction and general relationship satisfaction covary, these factors are two distinct components of a relationship (Byers, 2005). It is possible that a partner is sexually satisfied in the relationship but discontent with other aspects of the relationship and vice versa. As the preference for frequent sex scale is intended to measure a unique component of sexual satisfaction, I treat it as an observed factor on the latent overall satisfaction factor. In addition, my model includes overall satisfaction and investments in the relationship predicting trust. Trust, in turn, is modeled to predict commitment in the relationship.

Figure 1. Hypothesized Model. Intended structural equation model assessing how the investment model (including preference for frequent sex) and trust predict commitment.

Before testing the model, I began with Study 1 in an attempt to replicate conceptually the findings of Cameron and Ross (2007). I selected this study as a starting point for several reasons. First, relationship researchers began citing Cameron and Ross's findings in subsequent long-distance relationship maintenance models (Merolla, 2012). While their method was able to assess stay/leave behavior, it does not address factors of commitment, the quality of alternatives, satisfaction, and investment in the relationship. Replicating and extending their research would can help to validate their initial findings and build more theoretically based findings into the study of long-distance relationships. Second, Cameron and Ross incorporated variables similar to those in question for the

current research. For instance, ‘relational security’ is conceptually similar to ‘trust’ and stay/ leave behavior is a reliable outcome of commitment and persistence in the relationship. Their study provides a structure to transfer factors of interest from their study into factors similar to the investment model. Third, it offered a framework for investigation that assessed the interaction between gender and geographical proximity. Finally, the original work used relatively few measures, which allows researchers to add additional exploratory measures without overtaxing the participants.

The work of Wieselquist, Rusbult, Foster, and Agnew (1999), also provided a starting point for assessing the role of trust with the antecedents of commitment. Because their dyadic model demonstrated a positive association between trust, pro-relationship behaviors, and commitment, trust appears to serve as a stabilizing mechanism in relationships (Koranyi & Rothermund, 2012). I believe that satisfaction and investment in the relationship will predict relationship trust. Given that gender and relational proximity affect relationships, I hypothesize that satisfaction in the relationship as well as investment in the relationships will predict trust differently depending on gender and the proximity of the relationship. Although the appraisal of alternatives to the relationship may be more indicative of the other partner’s level of trust, Rusbult, Martz, and Agnew (1998) found that the appraisal of alternatives only shares approximately four percent of variability with trust.

I have several hypotheses for this study. First, I hypothesize that I will be able to replicate conceptually many of the findings of Cameron and Ross (2007) after changing the Beck Depression Inventory to the short Mental Health Inventory. Using the short mental health inventory provides a sub-clinical assessment of depressed mood compared

to the Beck Depression Inventory. I would also like to explore the mediating role of relational security between negative affect and relationship commitment. Second, I hypothesize that Cameron and Ross's constructs of relational security and negative affect will be significantly associated with measures for trust and the PANAS's Negative affect, respectively. Third, I believe that preferences for frequent sex, obligatory consensual sex, and trust will add predictive validity to commitment beyond the measure of relational security and negative affect alone. Fourth, as Pistole, Roberts, and Mosko (2010) found that satisfaction, alternatives, and investment in the relationship predicted commitment differently based on relationship proximity, I believe that the predictive relation between satisfaction, alternatives, and investments and commitment will differ between proximity and genders. In addition to their research that investigated the investment model between geographically close and long-distance couples, I will extend Pistole and colleagues' research by examining gender and proximity differences in my model (see Figure 1). Last, I believe that my proposed model (see Figure 1) will account for a significant portion of the variance in commitment. Additionally, the gender and proximity will moderate the This research takes on an exploratory nature as no prior research has assessed gender effects and proximity effects on trust, sex, and the investment model.

CHAPTER II

STUDY 1

Purpose

Study 1 was conducted to fulfill several objectives. First, I'm testing my first hypothesis and attempting to replication conceptually Cameron and Ross's (2007) findings. Specifically, they attempted determine whether relational security (i.e., optimism, faith in one's partner, and expected support) mediated the relationship between negative affect (i.e., depression, pessimism, and low self-esteem) and remaining in a relationship for college participants. Second, I piloted the creation of a scale intended to assess *preferences for frequent sex* and *obligatory consensual sex* with one's partner. These measures were then used to assess sexual factors across geographically close and long-distance relationships. Third, I compared how all variables used by Cameron and Ross (2007) predicted commitment in long-distance relationships and geographically close relationships.

After first investigating how the variables used by Cameron and Ross (2007) predicted commitment, I extended the replication by assessing how the constructs of negative affect and relational security compared to other well-validated measures. For example, Cameron and Ross (2007) conceptualized negative affect based on Watson and Clark's (1984) definition that aggregates the standardized scores of depression, self-esteem (reverse scored), and pessimism. Considering this and addressing my second

hypothesis, I believed that the findings of Cameron and Ross may describe more profound issues like clinical depression and diminished self-esteem whereas the Positive and Negative Affect Scale (PANAS) allows for a less clinical appraisal of emotions during a relationship. Last, to address my third hypothesis, I assessed the role that preferences for frequent sex, obligatory consensual sex, and trust played on commitment in the relationships.

Method

Participants

All participants were recruited through Amazon.com's Mechanical Turk (MTurk). MTurk is an online recourse that allows willing 'workers' to complete microtasks and surveys for financial compensation (Aguinis & Lawal, 2013). Although Amazon.com's MTurk service is a relatively new method of sampling participants, there is reason to believe that the sampled participants provide valid and reliable responses compared to more traditional undergraduate samples (Buhrmester, Kwang, & Gosling, 2011). The top three reasons for participating and completing surveys via Amazon.com's MTurk were for "enjoyment of doing interesting tasks", "to kill time", and "to have fun". The option, "To make money" was less important than the aforementioned reasons to participate in survey research through MTurk. Additionally, researchers have found that conducting studies online can mitigate possible acquiescence biases typically seen in traditional undergraduate samples (Gosling, Vazire, Srivastava, & John, 2004).

Rather than using a traditional, local undergraduate sample, I recruited via Amazon.com's MTurk because the online service offers the opportunity to sample participants throughout the United States as well as study older demographics. As most

researchers assessing long-distance relationship sample undergraduate populations, it is reasonable to believe that younger undergraduate samples do not equally represent older couples in long-distance relationships.

Four hundred and twenty-one participants began the survey; data from many individuals, however, were either incomplete (e.g., the participant left the survey prior to completing or omitted a response) or were deleted because the participants failed to meet the requirements of being in a romantic relationship. Four hundred and ten individuals reported their gender, which is a primary component for future analyses. From the 410 valid participants, 18 men and 11 women failed to complete the survey. Of the remaining 381 participants, 156 participants were men, and 225 were women. Women were significantly more likely than men to participate, $\chi^2(N=421, 1) = 4.92, p = .03$. There were 242 (63.5%) White participants, 49 (12.9%) Black, 42 (11.0%) Asian, 31 (8.1%) Hispanic-Latino, 5 (1.3%) Native American, and 12 (3.1%) of the participants who reported mixed races or refrained from answering. The average age of the participants was 29.21 ($SD = 10.04$). The average duration of the relationship was 33.44 months ($SD = 45.19$). The median duration of relationship was 18.00 months at the time of the survey. Three-hundred and nineteen individuals reported being heterosexual (85.2%); 25 (6.8%) reported being homosexual, and 24 (6.5%) reported being bisexual. The sample consisted of 56.9% single but dating couples, 16.8% engaged couples, 20.8% married couples, and 5.5% as either “unsure”, omitted a response, or divorced but in a new relationship. Due to missing or incomplete data, percentages may not equal 100%.

Participants responded with either “yes” or “no” to the question, “are you currently in what you would consider a long-distance relationship?” to dichotomize their

current relationship proximity. Among the 154 men, 93 reported being in a long-distance relationship. Among the 223 women, 133 reported being in a long-distance relationship. Using a chi-square test for independence, I found no significant differences between the distribution of men and women in geographically close or long-distance relationships, $\chi^2(1, N=377) = .02, p = .92$. The majority of participants ($n = 331, 86.9\%$) either previously experienced a long-distance relationship or were involved in a long-distance relationship when surveyed.

Measures

I recreated many of the original scales used with only two differences. Rather than assessing relationship termination over the course of six months, I used Rusbult, Martz, and Agnew's (1998) commitment subscale as the criterion variable. In addition, I used the five-item version of the Mental Health Inventory (MHI-5; Berwick, et al., 1991) instead of using the Beck Depression Inventory. Although the MHI-5 is short, Berwick, et al. (1991) found that it adequately detects depression and affective disorders as well as longer diagnostic assessments. I changed the depression inventory from the Beck Depression Inventory to the Mental Health Inventory because the Beck's Depression Inventory demonstrates slightly lower internal reliability coefficients for nonpsychiatric patients compared to psychiatric patients (Beck, Steer, & Carbin, 1988) whereas the MHI-5 tends to have better reliability in non-clinical populations.

Negative affect and relational security. To mimic the negative affect variable used by Cameron and Ross, I used a five-item scale to measure depression in sub-clinical populations (MHI-5; Berwick, et al., 1991; $\alpha = .84$), six items from the revised Life Orientation Test to measure pessimism (LOT-R; Scheier, Carver, & Bridges,

1994; $\alpha = .82$), and a ten-item measure designed to measure self-esteem (RSES; Rosenberg, 1965; $\alpha = .89$). To measure relational security, I used four items designed to measure faith in one's partner from the Trust Scale (TS; Rempel, Holmes, & Zanna, 1985; $\alpha = .82$), four items to measure expected support from one's partner derived from Murray and colleagues (1998; $\alpha = .68$), and three items used to measure relationship optimism (derived from MacDonald & Ross, 1999; $\alpha = .91$). To create a single variable for both negative affect and relational security, each sub-scale was standardized, and the standardized scores were averaged to create an index. Higher scores indicate higher degrees of self-reported negative affect (i.e., more depression, lower self-esteem, and more pessimism) and relational security (i.e., faith in partner, expected support, and relationship optimism). With the exception of using the Mental Health Inventory, these measure were identical to those used by Cameron and Ross (2007). Cronbach's alphas for the relational security and negative affect were .83 and .88, respectively.

Trust. To measure trust, I used questions derived from the Dyadic Trust Scale (DTS; Larzelere & Huston, 1980), which included seven items requiring likert type responses (example item: "My partner is primarily interested in his [or her] own welfare" and "I feel that my partner can be counted on to help me"). The Cronbach's alpha for these questions was adequate overall, $\alpha = .87$. I chose this measure because it has previously demonstrated consistently high internal reliability and it would offer a contrast to the faith variable, which is derived from the Trust Scale (TS; Holmes & Rempel, 1989). Because elements of relational security (i.e., faith in partner, expected support, and relational optimism) share facets of trust (i.e., faith in partner, predictability, and dependability), I decomposed the relational security factors and used their subscales as

their own variables in the analysis. This process allowed me to assess the unique predictive contribution each factor made towards the commitment.

Preference for frequent sex and obligatory consensual sex. As sex is often an important part of romantic relationships, I developed two scales to measure components of sex in geographically close and long-distance relationship: preference for frequent sex and obligatory consensual sex. As previous research indicated, couples who frequently have sex tend to be more satisfied with their relationships than couples who have less sex in their relationship (Call, Sprecher, & Schartz, 1995; Marsiglio & Donnelly, 1991). Because sex in long-distance relationships is not as feasible as it is in geographically close relationships, I created an eight-item scale designed to measure preference for frequent sex. This measure was designed to assess subjectively an individual's inclination for more (or less) sex with his or her current partner. The participants responded to questions like "Currently, I would prefer to have more sex with my partner" and "I desire more sex from my relationship" using a 5-point rating scale (1 = strongly disagree; 5 = strongly agree). See Table 3 for all item details and factor loading. Three factors were extracted using principle axis-factoring with a direct oblimin rotation. I call the first and second factors *a preference for more sex with one's partner* and *a preference for less sex with one's partner*, respectively. The third factor only contained the item, "Whenever possible, my partner and I have sex." I omitted naming this single item as a factor and excluded this item in the analyses because it failed to relate to a desire for more or less sex with one's partner. Furthermore, seeing that wanting more and less sex with one's partner are diametrically opposed to each other, the item scores for the preference for less sex were reverse scored and averaged across the two factors. Higher scores indicate a

stronger desire to have more frequent sex with one's partner. The internal reliability for the measure was adequate for men and women, $\alpha = .71$ and $.82$, respectively. As Sprecher (2002) found that sexual satisfaction significantly related to commitment, I believe that preferences for frequent sex can likewise predict commitment to the relationship.

Træen and Skogerbø (2009) found that couples experiencing sexual difficulties engage in sex to communicate commitment to the relationship. Given that long-distance couples are unable to have sex for an extended period of time and sometimes struggles to perform sexually upon reunion (Guldner, 2003), it is reasonable to assume that engaging in obligatory consensual sex and foster commitment to the relationship. To investigate this theory, participants responded to 10 items asking questions like, "I often have sex with my partner, even when I'm not in the mood" and "Even when I don't want to have sex, I feel I should have sex when my partner wants to have sex" with a 5-point rating scales (1 = strongly disagree; 5 = strongly agree). Please see Table 4 for all item details and factor loadings. Higher scores indicate higher feelings of obligatory consensual sex in the relationship. Using a principle axis-factoring with direct oblimin rotation, two factors were extracted. I entitled these factors *Partner's Pressure to Have Sex* and a *Willingness to Engage in Sex*. Because sexual obligation cannot form without a perceived pressure to have sex and a willingness to engage in sex, all items were averaged to form one total obligatory sex score. The measure presented adequate internal reliability for men and women, $\alpha = .77$ and $.87$, respectively.

Procedure

My intention was to replicate conceptually Cameron and Ross's (2007) study and to explore other possible factors affecting commitment. I decided to replicate their study for two primary reasons. First, Cameron and Ross focus on the individual's appraisal of the relationship and how the person's individual disposition affects the relationship. Second, researchers use many subscales (e.g., Faith and Expected Support) that measure components of *relational security*, which is comparable to trust (as defined by Holmes & Rempel, 1989). As the investment model was designed explicitly to measure commitment and persistence in the relationship, I wanted to assess if trust continued to relate with commitment in long-distance relationships. Additionally, Cameron and Ross found that negative affect predicted persistence in the relationship for men but not for women. Given their affect variable measured depression, self-esteem, and pessimism, I wanted to see if the same trend continued if controlling for the PANAS's positive and negative affect scales.

The survey was posted via Amazon.com's MTurk in the beginning of July of 2013. The posting was titled "Current Long-Distance Relationship Survey" and included the following short description,

"Survey on Romantic Relationships (Long-Distance and Geographically Close):
We are conducting an academic survey about Romantic Relationships
(Particularly Long-Distance Relationships). You must be at least 18 years of age
and in a romantic relationship. Select the link below to complete the survey. At
the end of the survey, you will receive a completion code to paste into the box
below."

With the description, participants are also presented with the \$0.20 payment¹ for submitting work. Workers were also required to be a US resident and have a worker approval rating of at least 70%. While the survey is automatically posted as a newly posted hit, participants also had the option to search for this listing using the following keywords: Survey, Romantic Relationships, Relationships, Relationship, Long Distance, Distance, Traits, Romance, Love, Long, Distances, Romantic, Commitment. On average, participants took 7.98 minutes ($SD = 5.10$) to complete the survey. After completing the survey, all participants were presented with a debriefing page, provided the researchers contact information, and thanked for their participation. The \$.20 compensation was automatically approved for payment within 8 hours of submitting the survey for work. After the payment was approved, the compensation was transferred for all participants who submitted work.

Results and Discussion

I first explored the correlations between relational security, the negative affect index, and commitment for men and women regardless of relationship proximity (see Table 1). For women, only relational security correlated with commitment and negative affect, $r(224) = .65, p < .01$, $r(224) = -.23, p < .01$, respectively. Without controlling for the proximity, men's endorsed relational security, negative affect, and commitment correlated with each other (see Table 1). Table 2 shows the correlations between negative affect, relational security, and commitment between the genders and relationship proximity. Overall trends between the genders continue when looking at the variable

¹ Initially, I placed a 'worker qualification' asking for only 'master workers' to complete the survey. After a week of data collection, only three participants completed the survey in its entirety. Assuming the qualifications were originally too stringent and significantly limited the number of eligible participants, I lowered the requirement for workers from 'master workers' to workers with at least a 70% approval rating.

relations between men and women in geographically close and long-distance relationships (see Table 4). No differences between the correlation coefficients within gender for geographically close and long-distance relationships were non-significant [Z 's < 1.81 , p 's $> .07$] using Fisher's r -to- z transformations (Cohen, Cohen, West, & Aiken, 2003).

Table 1

Correlations for Relational Security, Negative Affect, and Commitment Among All Participants

Variable	Relational Security	Negative Affect	Commitment
Relational Security	-		
Negative Affect	-.40** / -.23**	-	
Commitment	.70** / .65**	-.35 ** / -.09	-

Note. * = $p < .05$; ** = $p < .01$. Men ($n = 156$) are represented bold on the left whereas women ($n = 225$) are presented in normal font on the right.

Table 2

Correlations for Relational Security, Negative Affect, and Commitment between Gender and Relationship Proximity

Variable	Relational Security	Negative Affect	Commitment
Relational Security	-	-.17/ -.30**	.73**/ .59**
Negative Affect	-.49**/ -.29**	-	-.14 / -.09
Commitment	.62**/ .75**	-.36**/ -.29**	-

Note. * = $p < .05$; ** = $p < .01$. Geographically close relationships are presented in regular font, long-distance relationships are in bold. Men are presented below the main diagonal and women are presented above the main diagonal.

Testing Mediation

Cameron and Ross (2007) tested if relational security mediated the relationship between the negative affect by proximity interaction and stay/ leave behavior. I replicated their analyses by placing the negative affect by relationship proximity interaction into a regression analysis and assessed how it predicted commitment. I also kept relational

security as a mediating variable between the negative affect by proximity interaction and commitment relation. I conducted a mediation analysis using a 1000 resampling bootstrapping technique and assessed the indirect effects as recommended by Preacher and Hayes (2008). Similar to Cameron and Ross (2007), I found that the mean centered product of negative affect and relationship proximity significantly predicted overall commitment to the relationship ($B = -.27$ [$SE = .11$], t [152] -2.53 , $p < .05$, 95% CIs [-.49, -.06]) and accounted for a significant percentage of the variance, $R^2 = .04$, $F(1, 152) = 6.41$, $p < .05$. Unlike the findings of Cameron and Ross, I found a significant mediating role for relational security between the proximity by negative affect interaction and commitment relation, $R^2 = .51$, $F(1, 152) = 91.61$, $p < .001$. When adding relational security and the negative affect by proximity interaction as predictors of commitment, the significance the negative affect by proximity interaction drops to non-significant levels ($B = -.97$ [$SE = .80$], t [152] $= -1.21$, $p = .23$, 95% CIs [-2.56, .61]) whereas relational security remained significant, $B = 7.07$ ($SE = .54$), t (152) $= 13.01$, $p < .001$, 95% CIs [6.00, 8.14]. The data indicate a significant indirect effect for relational security on the negative affect by proximity relation with commitment, 95% CIs [-3.80, -.26]. These data suggest that relational security plays a mediating role between negative affect and commitment for men.

Although negative affect does not correlate with commitment among the women sampled, I found a similar outcome for the mediating role of relational security and negative affect by proximity interaction with commitment. For women, the proximity by negative affect relationship significantly predicts overall commitment to the relationship, $B = -.31$ ($SE = .07$), t (243) $= -4.08$, $p < .001$, 95% CIs [-.45, -.15]. When adding

relational security and the negative affect and proximity interaction to the model, I found a significant increase in the predictive relation with commitment, $R^2 = .42$, $F(2, 242) = 88.96$, $p < .001$. In the second model, relational security significantly predicted commitment to the relationship for women ($B = 7.51$ [$SE = .57$], $t [242] = 13.23$, $p < .001$, 95% CIs [6.39, 8.63]), however, the proximity by negative affect interaction no longer predicts commitment, $B = 1.14$ ($SE = .68$), $t (243) = 1.67$, $p = .10$, 95% CIs [-20, 2.49]. The indirect effect of relational security is significant with lower and upper bound confidence intervals of -3.77 and -1.25, respectively.

Extension to Cameron and Ross

To address if relational security and the negative affect index were significantly associated with trust and the PANAS's Negative affect factor, respectively, I analyzed trust, preference for frequent sex, obligatory consensual sex, in addition to Cameron and Ross's original measures. Additionally, the inclusion of these added variables to Study 1 allowed me to my third hypothesis: factors of trust, preference for frequent sex, and obligatory consensual sex will be better predictors of commitment. Although the role of negative affect on relational security and commitment is promising, additional factors may account for these differences. When considering long-distance relationships, Cameron and Ross's operational definition for negative affect – that is a composite of depression, low self-esteem, and pessimism- may be a consequence of other unobserved variables affecting the relationship rather than the more commonly known negative affect from the PANAS. As a result, it was necessary to identify whether and how the constructs of relational security and negative affect were unique from other constructs

and if they predict commitment equally well when other variables are considered in the models.

Using the same dataset, I built on Cameron and Ross's (2007) study in an exploratory manner. I examined more closely the constructs of relational security and negative affect. Additionally, I observed if trust, preference for frequent sex, and obligatory consensual sex added incremental predictive validity over negative affect and relationship security when predicting commitment for couples in geographically close or long-distance relationships.

Relational Security and Commitment

Commitment measures a person's connectedness to one's partner as well as the person's long-term orientation towards the relationship. Considering that relational security is composed of faith in one's partner, expected support in the relationship, and relational optimism, it is possible that relational security and commitment are unidimensional in nature. In other words, relational security and commitment measure the same underlying construct. For example, both relational security and commitment explicitly measure long-term orientation of the relationship. This finding is evident in the high correlations between relational security and commitment for men and women even after controlling for relationship duration, $r = .69$ and $r = .65$, respectively. Given this outcome, I will focus my attention primarily on commitment to the relationship in extended analyses and in my proposed model.

Table 3

Preference for Frequent Sex Items, Descriptions, and Pattern Matrix Factor Loadings

Item	<i>M</i>	<i>SD</i>	Corrected	Factor Loading		
			Item-Total Correlation	1	2	3
I desire more sex from my relationship	3.35	1.19	0.64	.88	.00	-.03
Currently, I would prefer to have more sex with my partner	3.59	1.19	0.66	.77	.05	.14
It bothers me that I don't have more sex with my partner	2.93	1.23	0.44	.75	-.06	-.12
I want to have sex with my partner as often as possible	3.72	1.10	0.69	.44	.28	.37
I would prefer having less sex with my partner **	3.93	1.10	0.56	.09	.74	.13
Having less sex would help my relationship with my partner**	3.84	1.07	0.41	-.03	.69	-.01
There is too much of an emphasis on sex in my relationship **	3.67	1.12	0.28	-.05	.61	-.11
Whenever possible, my partner and I have sex	3.49	1.21	0.21	-.05	-.05	.83

Note. *N* = 407. Factor analysis was conducted using principle axis-factoring with a direct oblimin rotation and Kaiser normalization. Rotations converged after 4 iterations. ** = items reverse scored.

Table 4

Obligatory Consensual Sex Scale Items, Descriptions, and Pattern Matrix Factor Loadings

Item	<i>M</i>	<i>SD</i>	Corrected Item-Total Correlation	Factor Loading	
				1	2
When I see my partner, I frequently feel pressured to have sex.	2.22	1.14	.61	.73	.04
I often have sex with my partner to maintain our relationship.	2.52	1.18	.63	.63	.16
My relationship will not last if I do not have sex with my partner when he or she wants.	2.27	1.14	.59	.61	.14
I feel obligated to have sex with my partner.	2.49	1.21	.65	.61	.22
My partner will become very upset if I do not have sex with him/ her.	2.34	1.16	.61	.60	.17
My partner rarely makes me feel like I must have sex with him or her. **	2.47	1.22	.22	.41	-.14
I will willingly have sex with my partner when he/she wants, even if I don't want to.	3.40	1.15	.40	-.11	.72

I often have sex with my partner, even when I'm not in the mood.	2.85	1.18	.63	.27	.57
My partner often wants me to have sex with him/her.	3.53	1.15	.29	.04	.38

Note. $N = 407$. Principle axis-factororing with a direct oblimin rotation and Kaiser normalization converged after 7 iterations. ** = items reverse scored.

Assessing Negative Affect, the PANAS, and Commitment

The PANAS offers a less clinical evaluation of an individual's general emotions compared to the negative affect index used by Cameron and Ross (2007). Please see Table 5 for the correlations between positive and negative affect according to the PANAS, the negative affect index, and commitment. Negative affect according to the PANAS and negative affect according to Cameron and Ross's (2007) index correlate with $r(243) = .71, p < .001$. Although these two variables are positively related, there is some evidence of discriminate validity between the PANAS's negative affect and Cameron and Ross's Negative Affect Index.

For women, although the PANAS's measure for negative affect does not significantly predict commitment ($\beta = -.07, R^2 = .004, F[1, 245] = 1.12, p = .29$), I found that the PANAS positive affect subscale significantly predicted relationship commitment, $\beta = .20, R^2 = .04, F(1, 244) = 5.14, p < .05$. Although this finding is statistically significant, positive affect only accounts for 4% of the variance in commitment. To explore further the predictive relation of commitment with the negative affect index and positive affect, I used a hierarchical linear regression with the negative affect index as in the first step and the PANAS's positive affect as the second step. Although the negative

affect index did not predict commitment in the first step of the model ($R^2 = .01$, $F [1, 245] = 2.48$, $p = .12$), including positive affect to the negative affect index significantly predicted commitment, $R^2 = .04$, $F (2, 244) = 5.24$, $p < .01$. More importantly, the change in R^2 was highly significant from the first to second step in the model, $\Delta R^2 = .03$, $\Delta F (1, 244) = 7.93$, $p < .01$. While statistically significant, the total model only accounted for 4% of the variance in commitment scores.

Similar to the women, the relation between the negative affect index and the PANAS's negative affect was significant, $r (176) = .63$. Only 40% of the variability is explained between each variable. This provides some support that the negative affect index and the PANAS's negative affect are measuring conceptually different constructs.

Table 5

Partial Correlations for the PANAS, the Negative Affect Index, and Commitment for Men and Women Controlling for Duration of the Relationship

	PANAS - Positive	PANAS - Negative	Negative Affect Index	Commitment
PANAS - Positive	-	-.35**	-.61**	.22**
PANAS - Negative	-.05	-	.71**	-.07
Negative Affect Index	-.48**	.63**	-	-.11
Commitment	.20**	-.19*	-.29**	-

Note. * $p < .05$; ** $p < .01$. All men ($n = 178$) are represented in the lower diagonal and all women ($n = 245$) are represented in the top diagonal.

For men, the PANAS's negative affect subscale also significantly predicted commitment, $\beta = -.22$, $R^2 = .05$, $F(1, 178) = 9.42$, $p < .01$. Similar to the women, men's positive affect significantly predicted commitment to the relationship ($\beta = .18$, $R^2 = .03$, $F[1, 178] = 5.91$, $p < .05$), but accounted for only 3% of the variance in commitment. Assessing the relation between negative affect and positive affect and its predictive relation with commitment, I used a hierarchical linear regression using the negative affect index as the first step and the participant's positive PANAS subscale scores as the second step. Although the first step of the analysis with the negative affect index significantly predicted commitment for men ($\beta = -.35$, $R^2 = .12$, $F[1, 178] = 24.97$, $p < .001$), including the positive affect in the second step of the model was non-significant, $\Delta R^2 < .01$, $\Delta F(1, 177) = .07$, $p = .80$.

More importantly, to assess if there are differences between the PANAS's negative affect scale and the negative affect index as used by Cameron and Ross (2007), I used a hierarchical linear regression. First, I used men's PANAS negative affect score as the first step of the model and then input the Cameron and Ross negative affect index in the second step of the model. Adding the negative affect index to the PANAS negative affect added significant incremental validity, $\Delta R^2 = .07$, $\Delta F(1, 177) = 14.68$, $p < .001$. These data suggest that the construct of negative affect as described by Cameron and Ross is conceptually different from general negative affect as commonly discussed in the literature. Perhaps the measures used by Cameron and Ross were delving into clinical disorders like depression as opposed to general negative affect. I followed a similar procedure to assess the predictive relation between the negative affect index and the PANAS' negative affect subscale for women and all tests yielded non-significant results.

Assessing Trust, Preference for Frequent Sex, and Obligatory Consensual Sex

After decomposing the relational security variable and analyzing the data, many factors continue to correlate with each other (see Table 6). More important, overall *trust* and *preference for frequent sex* correlated with commitment for women, $r(222) = .51$, $p < .001$ and $r(222) = .14$, $p < .05$, respectively. In addition, trust, preference for frequent sex, and obligatory consensual sex all correlated with commitment for men, $r_s(154) = .58, .39, -.32$, $ps < .001$, respectively. To clarify, higher endorsed scores for obligatory consensual sex indicates that men felt more pressure to have sex and engaged in initially unsolicited sex with their partners.

Table 6

Subscale Correlations between Overall Genders

	1	2	3	4	5	6	7	8
1. Commitment	-	-.09	.57**	.50**	.62**	.51**	.14*	-.12
2. Negative Affect	-.35**	-	-.22**	-.22**	-.16*	-.29**	.03	.22**
3. Faith	.63**	-.33**	-	.72**	.63**	.74**	.11	-.20**
4. Expected Support	.53**	-.34**	.71**	-	.51**	.79**	.03	-.23**
5. Relationship								
Optimism	.66**	-.38**	.73**	.43**	-	.56**	.11	-.09
6. Trust	.58**	-.44**	.78**	.77**	.52**	-	.06	-.29**
7. Freq Sex	.39**	-.15	.14	.14	.22**	.17*	-	-.13*
8. Obligatory								
Consensual Sex	-.32**	.22**	-.28**	-.40**	-.13	-.34**	-.11	-

Note. * $p < .05$, ** $p < .01$. Men ($n = 156$) are represented on below the main diagonal and women ($n = 224$) are represented above the main diagonal. Preference for Frequent Sex is abbreviated to Freq Sex.

Although obligatory consensual sex appeared to correlate with commitment for men, it did not correlate with commitment for women. Because obligatory consensual sex, a preference for frequent sex, and trust were included in the regression analyses because they demonstrated significant bivariate relations with relationship commitment. I analyzed faith, expected support, trust, preference for frequent sex, obligatory consensual sex, and negative affect as predictors of commitment in a simple enter method regression for each gender by relationship proximity demographic. Relational optimism was omitted

from this portion of the analysis as including it in the regression models suppressed significant results for all other factors. To clarify, the relationship optimism scale includes questions about the participants' long-term orientation towards continuing their relationships. Comparatively, relationship commitment also survey's the participants' the long-term orientation towards the relationship as well as their connectedness to their partners. Using relationship optimism as a predictor of relationship commitment essentially uses a similar underlying construct (i.e., long-term orientation) as a predictor and a criterion variable.

All regression models yielded significant results. For men in geographically close relationships, the six variables significantly predicted commitment (see Table 7) and accounted for a significant proportion of the variance in commitment scores, $R^2 = .39$, $F(6,54) = 5.79$, $p < .001$. Only faith and preference for frequent sex, however, uniquely predicted commitment for men in geographically close relationships. The six variables significantly predicted commitment for men in long-distance relationship and accounted for a significant proportion of the variance in commitment scores, $R^2 = .61$, $F(6,86) = 22.01$, $p < .001$. For men in long-distance relationships, only faith and preferences for frequent sex were significant predictors ($ps < .001$) and trust emerged as a marginally significant predictor $p < .10$. For women in geographically close relationships, the six variable model significantly predicted commitment (see Table 7) and accounted for a significant portion of the variance in commitment, $R^2 = .51$, $F(6,82) = 14.05$, $p < .001$. Unlike the men, preference for frequent sex did not uniquely predict commitment for women in geographically close relationships. Lastly, the six variable model also predicted commitment for women in long-distance relationships and the model accounted

for a significant portion of the variance for commitment, $R^2 = .30$, $F(6,126) = 8.93$, $p < .001$. Comparable to the men in long-distance relationships, preference for frequent sex emerges as a significant predictor of commitment in long-distance relationships.

Although Cameron and Ross (2007) found that negative affect was a significant predictor of stay/leave behavior for men, negative affect became non-significant when additional variables were included in the analysis. This finding is consistent for men in long-distance relationships and geographically close relationships. Comparable to their findings that relational security predicted stay/leave behavior, faith and trust in one's partner emerged as significant and marginally significant predictors of commitment, respectively. These initial results are promising for further investigation for several reasons. First, faith and trust emerge as consistent predictors of commitment and support previous findings (Wieselquist, Rusbult, Foster, & Agnew, 1999; Holmes & Rempel, 1989). Second, it appears that trust, faith, and preference for frequent sex with one's partner predict commitment differently depending on the relationship and gender of the participant. Third, as trust, faith, and preference for frequent sex predict commitment differently for men and women between geographically close relationships and long-distance relationships, it is possible that these factors influence the satisfaction, appraisal of alternative partners, investment, and commitment in the relationship differently as well.

Study 1 Concluding Remarks

I was able to replicate and extend many of the previous findings of Cameron and Ross (2007). Negative affect significantly related to the amount of commitment that men express towards the relationship. Unlike Cameron and Ross's study, relational security

emerged as a significant predictor of commitment for men and women regardless of proximity. Additionally, relational security served as a mediator for the relationship between the negative affect by proximity interaction and commitment to the relationship for both genders. Although negative affect related to commitment, negative affect no longer predicted commitment when adding preferences for frequent sex and trust were included in the analyses. As a result, Study 2 will not include negative affect. Study 2 builds on these findings by adding the entire investment model scale (i.e., satisfaction, quality of alternatives, and investments) as well as including participants' preference for frequent sex and trust. Obligatory sex will be omitted given that it failed to predict commitment for women and men in long-distance relationships. Although it significantly predicted commitment for men in geographically close relationships, this small regression coefficient only accounted for approximately 1% of the variability in commitment in the model. It is possible that this coefficient is significant as a result of sampling error with a small sample size and may not replicate in future studies.

Table 7

Variables Predicting Commitment between Gender and Relationship Proximity

Geographically Close Relationship Men				Long-Distance Relationship Men			
Variable	<i>B</i>	SE <i>B</i>	β	Variable	<i>B</i>	SE <i>B</i>	β
Faith	.22	.45	.50**	Faith	1.03	.32	.35**
Expected				Expected			
Support	-.25	.63	-.09	Support	.28	.31	.09
Trust	.10	.34	.07	Trust	.36	.22	.20 [†]
Preference for				Preference for			
Frequent Sex	.34	.17	.21*	Frequent Sex	.58	.13	.33**
Obligatory				Obligatory			
Consensual Sex	-.15	.16	-.12*	Consensual sex	-.10	.10	-.07
Negative Affect	-.96	1.35	-.09	Negative Affect	-.62	.83	-.05
Geographically Close Relationship Women				Long-Distance Relationship Women			
Faith	.78	.38	.26*	Faith	1.27	.39	.39**
Expected				Expected			
Support	.59	.46	.18	Support	.34	.46	.01
Trust	.57	.25	.34*	Trust	.10	.23	.06
Preference for				Preference for			
Frequent Sex	.01	.14	.00	Frequent Sex	.26	.11	.17*
Obligatory				Obligatory			
Consensual Sex	-.01	.11	.00	Consensual Sex	.02	.09	.02
Negative Affect	-.17	.78	-.02	Negative Affect	.73	.88	.07

Note. [†] $p < .10$, * $p < .05$, ** $p < .01$. Geographically close men $N = 64$, Geographically close women $N = 89$, Long-distance men $N = 93$, Long-Distance Women $N = 133$.

CHAPTER III

STUDY 2

Purpose

The main purpose of Study 2 was to integrate a stronger relationship research theory (i.e., the investment model) as opposed to atheoretical analyses into long-distance relationship research. Second, it allowed me to model differences between genders and relationship proximity. Study 2 built on Study 1 by incorporating relationship satisfaction, the quality of alternatives, and the amount of relationship investments. Given that I found that a preference for frequent sex and trust predicted commitment different in Study 1 for men and women based on relationship proximity, I also incorporated these variables into Study 2. Using similar procedures from Study 1, I tested the hypothesized model and explored alternative models to predict commitment for men and women in geographically close and long-distance relationships. Unlike Study 1, I added the three bases of commitment (i.e., satisfaction, quality of alternative, and relationship investments) into my models.

Method

Participants

A total of 886 men and women began my survey using Amazon.com's MTurk; however, data from 86 (9.7%) participants were deleted because the participants failed to complete all measures. Eighty-one (9.1%) of the participants failed at least one attention

check embedded in the survey. Five participants (.6%) were omitted because they were not in relationships lasting at least 2 months. The final sample consisted 708 participants; 180 men were in geographically close relationships; 104 men were in long-distance relationships; 285 women were in geographically close relationships; and 139 women were in long-distance relationships. Because attention checks were not included in Study 1, I assessed if either men or women were more likely to provide incomplete surveys or fail the attention checks. I found that men were significantly more likely than women to fail the attention checks or exit the survey before completing, $\chi^2(2, N = 864) = 13.25, p < .001$.

On average, participants were 30.07 ($SD = 9.68$) year old and averaged 53.62 ($SD = 66.17$; $Mdn = 29.00$) months in their relationships. In years, these relationships averaged 4.47 years with median relationship duration of 2.41 years. To ensure that our participants were in fairly established relationships, we only included data from participants who were in relationships for at least 2 months. Forty-eight (6.7%) participants were ‘casually dating’; 372 (52.1%) were ‘seriously dating’; 78 (10.9%) were engaged; 209 (29.1%) were married; and 8 (1.1%) reported ‘other’ or had missing data. The participants were predominately heterosexual ($N = 612, 85.7\%$) with 28 (3.9%) of participants reported being gay or lesbian, 45 (6.3%) reporting being bisexual, 17 (2.4%) reporting being pansexual, and 12 (1.7%) reporting being queer, other, or refrained from responding. My participants were primarily white ($N = 513, 73.2\%$) with 72 (10.1%) Blacks, 61 (8.7%) Asian or Pacific Islanders, 37 (5.2%) Hispanic-Latinos, 9 (1.3%) mixed/ other, and 7 (1.0%) Native Americans. The majority of participants (61.5%) reported have been in a long-distance relationship prior to their current

relationship and 76.2% of participants are either currently in a long-distance relationship or have previously been in a long-distance relationship.

Amazon.com's MTurk gives researchers the option to reject participants with inadequate or poorly completed work. Despite MTurk's option to reject work and refuse compensation to the participants, I automatically authorized the \$.20 payment for all participants' work who submitted their surveys. Furthermore, in the rare chance that participants completed the survey but were not able submit the work to MTurk; I created additional hits customized to the participants to ensure they were compensated appropriately for participating.

Measures

Trust. Based on the results of Study 1, I have decided to use The Trust in Close Relationship Scale (TCRS; Rempel, Holmes, & Zanna, 1985). The scale had 17 items designed to measure levels of trust based on three subscales: predictability, dependability, and faith. All questions were answered using a 7-point rating scale ranging from strongly disagree to strongly agree. As subscales, five items measured dependability (example items: "I have found that my partner is usually dependable, especially when it comes to things which are important to me" and "I can rely on my partner to keep the promises he/she makes to me"), five items measured predictability (example items: "I am never certain that my partner won't do something that I dislike or will embarrass me" [reverse scored] and "My partner behaves in a very consistent manner"), and seven question measured faith in one's partner (example items: "Whenever I have to make an important decision in a situation I have never encountered before, I know my partner will be concerned about my welfare" and "When I share my problems with my partner, I know

he/ she [sic] will respond in a loving way even before I say anything”. As recommended by Rempel, Holmes, and Zanna (1985) all dependability, predictability, and faith items were averaged to provide a total trust score. The data presented good internal reliability for both men and women with Cronbach’s alpha of .90 and .93, respectively.

Preference for frequent sex. As I found in Study 1, preference for frequent sex with one’s partner significantly predicted commitment for men in long-distance relationships and geographically close relationships and for women in long-distance relationships. Comparatively, preference for frequent sex was not predictive of commitment for women in geographically close relationships. In the hopes of replicating similar results, I included an amended version of the scale in this analysis. The amended version was the same as the scale in Study 1 but omitted the item “Whenever possible, my partner and I have sex” because this item failed to load onto either the preference for more or the preference for less sex.

The motivation behind the preference for frequent sex scale was to provide a subjective measure of sexual desire in one’s current relationship. This scale differed from typical sexual desire scales that attempt to measure an individual’s libido as rather than sexual desire for one’s partner in the current relationship. The preference for frequent sex scale includes items designed to measure a preference for more sex in the current relationship as well as a preference for less sex with the current relationships (Please refer to Table 8 for the items, mean, standard deviation, and factor loadings). Comparable to Study 1, the same factor structure emerged. Two factors were extracted using principle axis-factoring with direct oblimin rotation. The first factor, a preference for more sex with one’s partner, accounted for 41.07% of the variance whereas the second factor, a

preference for less sex with one's partner, accounted for 15.71% of the variance in scores. Given that preference for more and less sex in a relationship share a continuous relationship with one another, all items were averaged into one preference for frequent sex score for the participants. Based on the data, the 7-item scale demonstrated adequate reliability of .75 and .82 for men and women, respectively.

The investment model scale. The investment model scale (IMS; Rusbult, Martz, & Agnew, 1998) is designed to measure an individual's subjective, dispositional, and comparative evaluation of commitment to one's partner, satisfaction in the relationship, appraisal of alternatives, and tangible and intangible investment in the relationships. The scale's goal is to assess an individual's persistence in the relationship, which is measured by the individual's overall commitment. The bases of commitment (i.e., satisfaction, alternatives to the relationship, and investments) affect how committed the individual will be in the relationship.

Overall, the scales consist of 37 items; 10 items uniquely measure satisfaction, 10 items alternatives, 10 items investment, and 7 items measure commitment. With the exception of the commitment subscale, the bases of commitment consist of 5 facets and 5 global items each. Facet items were answered with a 7 point rating-scale (1 = Don't agree at all; 7 = Agree completely) while global items are answered with an 8 rating-scale (1 = Do not agree at all: 7 = Agree completely). Higher total scores indicate greater feelings of satisfaction, positive appraisal of alternatives, investment, and commitment to the relationship. Satisfaction, for instance, is measured with items like, "My partner fulfills my needs for intimacy" and "My relationship is close to ideal." Quality of alternatives is measured with items like, "My needs for companionship could be fulfilled in alternatives

relationships” and, “If I weren’t dating my partner, I would do fine- I would find another appealing person to date.” Investment in the relationship is measured with questions like, “I have invested a great deal of time in our relationship” and, “I have put a great deal into our relationship that I would lose if the relationship were to end.” Lastly, commitment in the relationship is measured with items like, “I want our relationship to last for a very long time” and, “I feel very attached to our relationship – very strongly linked to my partner.” These scales demonstrated good reliability. For satisfaction, I observed alpha’s of .94 and .96 for men and women, respectively. For alternatives to the relationship, I found alpha’s of .90 for both men and women. Investments had similar reliability for men and women with alphas of .84 and .86, respectively. Last, commitment demonstrated adequate reliability with alphas of .90 for both men and women.

Procedure

Two web postings were available for participants to complete the survey via Amazon.com’s MTurk. The first posting was entitled “Relationship Survey: Assessing Geographically Close & Long-Distance Relationships” and contained the description, “We investigate how different factors affect long-distance and geographically close relationships.” Participants could also search for the new survey using keywords identical to those used in Study 1. In an attempt to improve the quality of the data, all participants needed to have a worker approval rating of 70% prior to accepting and completing the survey. To improve the response rate for men and women in long-distance relationships, an additional hit was created three weeks after the initial survey was deployed. This hit was titled, “Men and Women in Long-Distance Relationships: Survey” and shared the same description as the first hit.

Table 8

Preference for Frequent Sex Items, Descriptions, and Pattern Matrix Factor Loading

Item	M	SD	Corrected	Factor Loading	
			Item-Total Correlation	1	2
I desire more sex from my relationship	3.26	1.20	.66	.91	-.03
Currently, I would prefer to have more sex with my partner	3.51	1.18	.73	.85	.12
It bothers me that I don't have more sex with my partner	2.84	1.33	.49	.75	-.12
I want to have sex with my partner as often as possible	3.67	1.15	.53	.40	.32
I would prefer having less sex with my partner	4.22	.99	.61	.18	.79
Having less sex would help my relationship with my partner	4.21	.92	.38	-.04	.63
There is too much of an emphasis on sex in my relationship	3.94	1.07	.29	-.10	.62

Note. $N = 690$. Factor analysis was conducted using principle axis-factoring with a direct oblimin rotation and Kaiser normalization. Rotations converged after 12 iterations.

Once the participants clicked on the hit, they were presented with a more detailed description of the study. Interested participants were given the following description:

“We are conducting a research about Romantic Relationships (particularly Long-Distance Relationships and Geographically Close). You must be at least 18 years of age, in a romantic relationship for at least 2 months, and a resident of the United States. Select the link below to complete the survey. At the end of the survey, you will receive a code to paste into the box below for taking our survey.”

For the participants' reference, a copy of the study's consent form was also available in the web posting. If the participants wanted to take part in the study, they clicked on a hyperlink within MTurk. This link then directed them to the study survey in a separate web-browser window.

At this point, informed consent was obtained digitally from the participants, followed by a demographics page, and then the survey scales. The survey was programmed to present the scale items randomly order to minimize possible sequence effects. The items, however, were grouped with their respective scales. For example, all trust questions were presented in random order with other trust questions and all commitment questions were presented in random order with other commitment questions. Trust items were neither displayed with commitment questions nor vice versa. Participants averaged 8.39 mins ($SD = 3.07$) to complete the survey. Participants with deleted data (i.e., failed to pass at least one attention check) completed the survey in significantly less time ($M = 363.70$, $SD = 212.63$), $t(94.52) = -5.68$, $p < .001$. Having significantly shorter completion

times and failed one attention check, these participants' data were excluded from the analysis.

At the completion of the survey, all participants were given a debriefing screen informing them of the purpose of the study, the authors contact information, and a randomized completion code to submit on MTurk. Although we requested workers to enter the completion code on MTurk, we still authorized all submitted work for payment regardless if the worker entered an incorrect completion code, left the completion code blank, or provided anything other than the randomly assigned completion code.

Results

Multivariate Differences

Long-distance relationship research often addresses differences between individuals in geographically close and long-distance relationships. I followed suit by first assessing if there were significant differences based on gender and relationship proximity. I used a Multiple Analysis of Covariance (MANCOVA) with the duration of the relationship as a covariate. I used trust, satisfaction, alternatives, investments, commitment, and preference for frequent sex as dependent measures. Table 9 shows relevant descriptive statistics for the dependent measures.

As a covariate, I found that the duration of the relationship had a significant multivariate effect the outcome measures, Wilk's $\Lambda = .93$, $F(6, 698) = 9.32$, $p < .001$, $\eta_p^2 = .08$. The relationship duration appears to influence relationship investments the most ($\eta_p^2 = .04$), followed by relationship commitment ($\eta_p^2 = .01$). Relationship duration accounts for less than .05% of the variability in trust, preference for frequent sex, satisfaction, and perceived alternatives to the relationship. There were significant multivariate difference

between men and women (Wilk's $\Lambda = .97$, $F(6, 698) = 4.17$, $p < .001$, $\eta_p^2 = .04$) and a significant multivariate difference between participants in geographically close relationships and participants in long-distance relationships, Wilk's $\Lambda = .97$, $F(6, 698) = 3.59$, $p = .002$, $\eta_p^2 = .03$. I failed to find a multivariate interaction between the participant's gender and the proximity to their partner, Wilk's $\Lambda = .99$, $F(6, 698) = .92$, $p = .48$, $\eta_p^2 = .01$. The largest univariate interaction accounted for only .3% of the variability in satisfaction. Given these minuscule effect sizes for the interactions, I omitted these interaction effect sizes from the table. Please note that although the main effects between genders and relationship proximity are statistically significant, the univariate main effect sizes typically account for only 1% or less of the variability in the outcome score.

Predicting Commitment

Tables 10 and 11 contain all means, standard deviations, and partial correlations controlling for relationship duration for men and women in geographically close and long-distance relationships. While many of the relations between variables do not appear to differ across genders and relationship proximity, some contrasting relations emerged. Perhaps the most noteworthy differences were between men and women in long-distance relationships. In particular, the relations between alternatives and commitment for men ($r [102] = -.26$) and women ($r [137] = -.50$) were significantly different from each other, $Z = 2.16$, $p = .03$. Furthermore, the relations between investments and commitment significantly differed between men in long-distance relationships ($r [102] = .70$) and women in long-distance relationships ($r [137] = .50$), $Z = 2.42$, $p = .02$.

Table 9

Descriptive Statistics for Differences between Gender and Relationship Proximity

Variable	Men		Women		Between Effect	
	GC	LD	GC	LD	h_p^2	h_p^2
Trust	<i>N</i> = 180 5.42 (0.88)	<i>N</i> =104 5.39 (0.84)	<i>N</i> = 285 5.42 (1.07)	<i>N</i> = 139 5.49 (1.05)	Gender	Proximity
Preference for						
Frequent Sex	3.62 (0.70)	3.80 (0.76)	3.59 (0.78)	3.75 (0.78)	.01	.00
Satisfaction	5.76 (1.07)	5.46 (1.09)	5.63 (1.31)	5.63 (1.35)	.00	.00
Alternatives	3.75 (1.45)	3.96 (1.20)	3.29 (1.43)	3.67 (1.43)	.01	.02
Investments	5.55 (0.92)	5.28 (0.89)	5.71 (1.00)	5.48 (0.95)	.01	.01
Commitment	6.07 (1.04)	5.53 (1.25)	6.24 (1.11)	6.03 (1.19)	.01	.01

Note. Cells represent means for each condition. *SD*'s are represented in parentheses. Measures of effect size control for duration of the relationship as a covariate. η^2

Table 10

Geographically Close Relationship Partial Correlations Controlling for Relationship Duration

Men in Geographically Close Relationships							
Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Trust	5.42	.88					
2. Preference for Frequent Sex	3.62	.70	-.03				
3. Satisfaction	5.76	1.07	.79**	.00			
4. Alternatives	3.76	1.45	-.38*	-.16*	-.30**		
5. Investments	5.55	.92	.51**	.13	.62**	-.22**	
6. Commitment	6.07	1.04	.54**	.22**	.73**	-.43**	.67**
Women in Geographically Close Relationships							
Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Trust	5.44	1.07					
2. Preference for Frequent Sex	3.59	.78	.03				
3. Satisfaction	5.63	1.31	.80**	.04			
4. Alternatives	3.29	1.43	-.35**	-.01	-.37*		
5. Investments	5.71	1.00	.44**	.17*	.57**	-.33**	
6. Commitment	6.24	1.12	.48**	.15*	.61**	-.48**	.64**

Note. * $p < .05$; ** $p < .01$.

Table 11

Long-Distance Relationship Partial Correlations Controlling for Relationship Duration

Men in Long-Distance Relationships							
Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Trust	5.39	.84					
2. Preference for Frequent Sex	3.8	.76	.22 [*]				
3. Satisfaction	5.46	1.09	.60 ^{**}	-.05			
4. Alternatives	3.96	1.20	-.29 ^{**}	-.03	-.22 [*]		
5. Investments	5.28	.89	.53 ^{**}	-.11	.69 ^{**}	-.30 ^{**}	
6. Commitment	5.72	1.25	.56 ^{**}	.14	.73 ^{**}	-.26 ^{**}	.70 ^{**}
Women in Long-Distance Relationships							
Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Trust	5.49	1.05					
2. Preference for Frequent Sex	3.75	.78	.19 [*]				
3. Satisfaction	5.63	1.35	.84 ^{**}	.16			
4. Alternatives	3.67	1.43	-.36 ^{**}	-.19 [*]	-.32 ^{**}		
5. Investments	5.48	.95	.43 ^{**}	.15	.49 ^{**}	-.21 [*]	
6. Commitment	6.03	1.19	.64 ^{**}	.31 ^{**}	.74 ^{**}	-.50 ^{**}	.54 [*]

Note. * $p < .05$; ** $p < .01$.

Predicting Commitment with Hierarchical Regression

I used hierarchical regression to assess if trust, preference for frequent sex, satisfaction, alternatives, and investments would predict relationship commitment for each gender and proximity combination (i.e., men in long-distance relationships, men in geographically close relationships, women in long-distance relationships, and women in geographically close relationships). As a result, I had four separate regression models. Because of severe issues of negative skew in the commitment variable, I used the $\log_{10}$ transformation of commitment to improve the accuracy of the analyzes and to correct for skewness in the data (Fields, 2009). To control for the longevity of the relationship, I regressed the relationship duration on relationship commitment in Step One for each model. Given that preference for frequent sex and trust emerged as predictive factors in Study 1, I entered preference for frequent sex and trust in Step Two of the models. For the third and final step, I added satisfaction, alternatives, and investments as predictors. Please see Table 12 for all standardized regression coefficients for men in geographically close and long-distance relationships and Table 13 for all standardized regression coefficients for women in geographically close and long-distance relationships. Note that the lowest tolerance of multi-collinearity among all models was .28 with a VIF of 3.57. This finding suggested that I did not have significant issues with multi-collinearity in the data (Cohen, Cohen, Aiken, & West, 2003). Based on a review of the residual histograms and P-P plots, the residuals appeared to be normally distributed and thus satisfied the regression assumption of homoscedasticity.

Table 12

Hierarchical Regressions Predicting Commitment for Men

Men in Geographically Close Relationships				
Steps and Variables	β	Tolerance	R^2	ΔR^2
Step 1			.02	
Relationship Duration	.16*			
Step 2			.37	.34**
Relationship Duration	.02	.91		
Trust	.53**	.98		
Preference for Frequent Sex	.27**	.93		
Step 3			.69	.31**
Relationship Duration	.04	.86		
Trust	-.16*	.34		
Preference for Frequent Sex	.18**	.88		
Satisfaction	.63**	.31		
Alternatives	-.17**	.81		
Investments	.26**	.55		
Men in Long-Distance Relationships				
Steps and Variables	β	Tolerance	R^2	ΔR^2
Step 1			.01	
Relationship Duration	-.03			
Step 2			.25	.24**
Relationship Duration	-.08	.98		
Trust	.49**	.95		
Preference for Frequent Sex	.04	.94		
Step 3			.60	.35**
Relationship Duration	-.10	.75		
Trust	-.05	.53		
Preference for Frequent Sex	.21**	.87		
Satisfaction	.52**	.44		
Alternatives	-.02	.86		
Investments	.35**	.43		

Note. * $p < .05$; ** $p < .01$. The $\log_{10}$ root of Commitment was used as the dependent variable due to severe issues of skewness in the data.

Table 13

Hierarchical Regressions Predicting Commitment for Women

Women in Geographically Close Relationships				
Steps and Variables	β	Tolerance	R^2	ΔR^2
Step 1			.01	
Relationship Duration	.11			
Step 2			.23	.22**
Relationship Duration	.14**	.99		
Trust	.44**	1.00		
Preference for Frequent Sex	.16**	.99		
Step 3			.53	.31**
Relationship Duration	.05	.90		
Trust	-.10	.37		
Preference for Frequent Sex	.09*	.95		
Satisfaction	.37**	.30		
Alternatives	-.20**	.83		
Investments	.40**	.62		
Women in Long-Distance Relationships				
Steps and Variables	β	Tolerance	R^2	ΔR^2
Step 1			.00	
Relationship Duration	.01			
Step 2			.39	.39**
Relationship Duration	.10	.98		
Trust	.56**	.95		
Preference for Frequent Sex	.20**	.96		
Step 3			.62	.23**
Relationship Duration	-.03	.88		
Trust	-.14	.28		
Preference for Frequent Sex	.15**	.94		
Satisfaction	.66**	.28		
Alternatives	-.23**	.86		
Investments	.17*	.71		

Note. * $p < .05$; ** $p < .01$. The $\log_{10}$ root of Commitment was used as the dependent variable due to severe issues of skewness in the data.

Men in Geographically Close Relationships

For men in geographically close relationships, I was able to predict commitment on all steps of the hierarchical regression. For step one, the duration of the relationship significantly predicts commitment to the relationship, $R^2 = .02$, $F(1, 178) = 3.92$, $p = .05$. For step two, adding trust and preference for frequent sex significantly predicted commitment in the relationship, $R^2 = .35$, $F(3, 176) = 32.85$, $p < .001$. Additionally, adding trust and preference for frequent sex added significant incremental validity, $\Delta R^2 = .34$, $\Delta F(2, 176) = 46.32$, $p < .001$. Last, adding satisfaction, alternatives, and investments to the model accounted for a significant portion of the variability in commitment, $R^2 = .65$, $F(6, 173) = 54.21$, $p < .001$. This addition also significantly added incremental validity to the model, $\Delta R^2 = .29$, $\Delta F(3, 173) = 48.80$, $p < .001$. Between the second and third steps in the model, it is important to note that trust changes from a significant and positive β of .53 ($t[176] = 8.77$, $p < .001$) to a significant and negative β of -.16, $t(173) = -2.12$, $p = .04$. Because trust and satisfaction correlated highly with one another for men in geographically close relationships ($r [178] = .79$, $p < .001$), I observed reduced multicollinearity tolerance and increased variance inflation factors (VIFs). In the third step of the model, trust and satisfaction had tolerance of .35 and .31, respectively, and VIFs of 2.87 and 3.20.

Men in Long-Distance Relationships

Different trends emerged when predicting commitment for men in long-distance relationships. In this case, relationship duration did not predict relationship commitment, $R^2 = .001$, $F(1, 102) = .09$, $p = .77$. Adding trust and preference for frequent sex added incremental validity ($\Delta R^2 = .24$, $\Delta F[2, 100] = 16.20$, $p < .001$) and overall accounted for a

significant portion of variance in commitment, $R^2 = .25$, $F(3, 100) = 10.84$, $p < .001$.

Regressing satisfaction, alternatives, and investments in the model's third step added a significant amount of incremental validity ($\Delta R^2 = .35$, $\Delta F[3, 97] = 28.26$, $p < .001$) and generated a model that accounted for a significant 57% of the variability in commitment, $F(6, 97) = 23.98$, $p < .001$.

For men in long-distance relationships, preference for frequent sex was not a significant predictor of commitment in the model's second step, $\beta = .04$, $t(100) = .42$, $p = .68$. When I added satisfaction, alternatives, and investments to the model, the preference for frequent sex emerged as a significant predictive factor for men's long-distance relationship commitment, $\beta = .21$, $t(97) = 3.01$, $p < .01$. Surprisingly, the measure of alternatives to the relationship was not a significant predictor of commitment for men in long-distance relationships, $\beta = -.02$, $t(97) = -.22$, $p = .83$.

Women in Geographically Close Relationships

For women in geographically close relationships, relationship duration only marginally predicted commitment, $R^2 = .01$, $F(1, 283) = 3.53$, $p = .06$. Adding preference for frequent sex and trust for the second step in the model added a significant amount of incremental validity ($\Delta R^2 = .22$, $\Delta F[2, 281] = 39.83$, $p < .001$) and accounted for a significant portion of the variance in commitment, $R^2 = .23$, $F(3, 281) = 28.05$, $p < .001$. Like the models for men, adding satisfaction, alternatives, and investments to the model provided a significant increase in my predictive abilities, $\Delta R^2 = .31$, $\Delta F(3, 278) = 61.78$, $p < .001$. Furthermore, the total model for women in geographically close relationships accounts for a significant portion of commitment variability, $R^2 = .54$, $F(2, 281) = 54.02$, $p < .001$. Comparable to men in geographically close relationships, the predictive ability

of trust dropped from significant levels ($\beta = .44, t[281] = 8.33, p < .001$) to non-significant levels ($\beta = -.10, t[278] = 8.33, p < .001$) in the third step of the model. Given that the variance inflation factor for trust and satisfaction are 2.74 and 3.29, respectively, multi-collinearity does not appear to negatively influence my models.

Women in Long-Distance Relationships

For the first step in the model, relationship duration failed to account for a significant portion of variability in commitment scores ($R^2 < .001, F[1, 137] = .03, p = .87$) for women in long-distance relationships. Adding a preference for frequent sex and trust to the model significantly increased my ability to predict commitment, $\Delta R^2 = .39, \Delta F(2, 135) = 42.67, p < .001$. The second step of the model also accounted for a significant portion of the variability in commitment scores, $R^2 = .39, F(3, 135) = 28.46, p < .001$. Furthermore, adding satisfaction, alternatives, and investments to the model added incremental validity above and beyond the relationship duration, trust, and preferences for frequent sex, $\Delta R^2 = .23, \Delta F(3, 132) = 26.29, p < .001$. The third step in the model accounted for a highly significant 62% of the variability in commitment scores, $F(6, 132) = 35.37, p < .001$. Similar to men in geographically close relationships, the predictive ability of trust changed from the second step to the third step in the model for women in long-distance relationships. Trust changed from significant ($\beta = .56, t[135] = 8.12, p < .001$) to non-significant levels, $\beta = -.14, t(132) = -1.38, p = .17$.

The Hypothesized Model

To assess more thoroughly the predictive relation between satisfaction and preference for frequent sex, alternatives, investments, and trust as they relate to

commitment, I tested my hypothesized model using LISREL 9.1. Because several of the variables lacked adequate normality, I used the Generalized Least Squares estimates to minimize some issues with skewness in the data (Tabachnick & Fidell, 2013). I first tested the stability of the total hypothesized model among all participants regardless of gender and relationship proximity. In this case, I created a latent variable called, “General Satisfaction” with indicators of relationship satisfaction from the investment model scale and preference for frequent sex. The latent variable general satisfaction, alternatives, and investment in the relationship became the primary exogenous variables. General satisfaction was hypothesized to predict trust and commitment. Trust, as an endogenous variable, was hypothesized to predict commitment. Alternatives and investments in the relationship were both hypothesized to predict commitment and investments was hypothesized to predict trust. Please see Figure 2 for outcome and ‘parameter estimates’ for the hypothesized model.

The model converged after 50 iterations using the generalized least squares method of estimation. Although the model was identified and converged, the model provided an inadequate and inappropriate representation of the data. Several issues emerged. In particular, the theta epsilon and theta delta matrices were not positive definite. For example, I found a Heywood case occurred with the diagonal theta epsilon matrix containing negative error variance for alternatives and investments. Given that preference for frequent sex with one’s partner and relationship satisfaction scores do not correlate with one another ($r[706] = .04, p = .27$), using them as indicators for one latent variable is insufficient to provide a stable latent measures variable. These issues resulted in a model with uninterpretable parameter estimates and terrible data fit, $\chi^2(1) = 1880.79$,

RMSEA = .20, NFI = -3.03, CFI = 0.00, SRMR = .16, AGFI = -10.11. Subsequent multi-group moderated testing cannot be assessed with such a volatile and poor fitting model. In an attempt to salvage the data and provide a more interpretable model, I amended the model to fit the data using and empirical and judgmental approaches.

In the first model revision, I removed the latent ‘general satisfaction’ variable and left preference for frequent sex and satisfaction as unique exogenous variables. Both preference for frequent sex and satisfaction were set to predict relationship trust and commitment. Using the same generalized least squares estimation method, the model converged after one iteration. The revised model inadequately fits the data with only two degrees of freedom, $\chi^2(2) = 23.12$, RMSEA = .12, NFI = .95, NNFI = .65, CFI = .95, SRMR = .03, AGFI = .88. This model, however, is a marked improvement over the initial hypothesized model, $\Delta\chi^2(1) = 1857.67, p < .001$.

Prior to making addition changes to the model, I reviewed the correlation tables to assess the relations between the exogenous and endogenous variables. Among all participants, I found that preference for frequent sex only related to investments in the relationship ($r[712] = .10, p = .006$), trust ($r[712] = .08, p = .03$), and commitment, $r(712) = .18, p < .001$. Contrary to the hypothesized model, alternatives also related to trust in the relationship, $r(712) = -.33, p = .001$. I attempted to reconcile these differences through additional changes to the model.

Figure 2. The Outcome for the Hypothesized Model. $N = 708$. Although the parameter estimates are standardized, they should *not* be interpreted due to significant issues with the proposed model. Indications of parameters' significant are intentionally omitted. The model demonstrated horrible fit, $\chi^2(1) = 1880.79$, RMSEA = .20, NFI = -3.03, CFI = 0.00, SRMR = .16, GFI = .47, AFGI = -10.11.

As a third model, I removed preference for frequent sex as exogenous variable and made it an endogenous variable. Because preference for frequent sex relates to investments and commitment in the relationship, I added a parameter allowing investments to predict preference for frequent sex and a parameter allowing preference for frequent sex to predict commitment.

The new model converged after three iterations. The model, however, failed to provide an adequate fit for data with relatively few degrees of freedom, $\chi^2(4) = 24.05$,

RMSEA = .09, NFI = .95, NNFI = .83, CFI = .96, SRMR = .03, AGFI = .94. This model results in investments as a non-significant predictor of trust in the relationship. As a fourth model, I removed this non-significant parameter. By removing this parameter, I was able to generate a model that adequately fit the data, $\chi^2(5) = 25.68$, RMSEA = .08, NFI = .95, NNFI = .86, CFI = .95, SRMR = .03, AGFI = .95.

I made one final revision to the model. Based on the modification indices for the fourth model and empirical support from the correlation tables, I added a parameter allowing alternatives to the relationship to predict trust. This final model demonstrates adequate fit for the data, $\chi^2(4) = 4.72$, RMSEA = .02, NFI = .99, NNFI = .99, CFI = 1.00, SRMR = .01, AGFI = .99. Furthermore, this fifth model fit the data significantly better than the subsequent model, $\Delta\chi^2(1) = 20.96$, $p < .001$. Please see Figure 3 for all standardized parameter estimates for this model. Additionally, with 14 parameters to estimate, I satisfied the sample recommendations of 8-10 participants per parameter for three of my four conditions. Men in long-distance relationships were only 8 participants short of meeting this recommendation.

Testing Invariance

According to Tabachnick and Fidell (2013), to assess if there are parameter differences between the unique groups, one must first establish invariance between groups. In other words, identify that the proposed model fits equally well for all discrete group conditions. To establish invariance, one must first fit the models separately for each condition. Second, all group covariance's should be combined into a configural model and tested with unique group parameters free to vary between group conditions. If the configure model continues to fit well when all parameters are free to vary, we have

support for group model invariance. If the configure model does not support a sufficient global model fit, there is evidence that a different model structure would be appropriate for the separate condition groups. Only if invariance is established between all groups should a researcher then begin constraining parameters and testing for model changes.

I used the final aggregated fitted model (as seen in Figure 3) to test the invariance between groups. Specifically, I tested for model fit on men and women in geographically close and long-distance relationships as separate models. The fit statistics for each of these models can be seen in Table 14. Please see Figure 4 and 5 for standardized regression parameters for men and women between geographically close and long-distance relationships, respectively.

Based on the model fit, I found that the model adequately fit the data for men in geographically close relationships as well as both women in geographically close and long-distance relationships. For men in long-distance relationships, however, the proposed model failed to fit adequately the data. As a result, I am unable to support an invariant global configural model for all conditions. Based on the fit statistics in Table 14, men in long-distance relationships need an independent model to predict commitment, trust, and preference for frequent sex. A separate model exploring these relationships will be discussed after parameter differences are tested for men in geographically close relationships, and both women in long-distance and geographically close relationships.

Figure 3. Final Model Predicting Relationship Commitment. All parameters represent standardized estimates using generalized least squares estimation. $N = 708$. $\chi^2(4) = 4.72$, RMSEA = .02, NFI = .99, NNFI = .99, CFI = 1.00, SRMR = .01, AGFI = .99. * $p < .05$.

Table 14

Invariance Between Models

Gender	Proximity	<i>N</i>	χ^2	df	RMSEA	NFI	CFI	SRMR
Men	Geographically Close	180	8.89	4	.03	.93	.96	.05
Men	Long-Distance	104	29.60	4	.25	.59	.56	.14
Women	Geographically Close	285	1.53	4	.00	.99	1.00	.02
Women	Long-Distance	139	6.02	4	.06	.94	.98	.07
Configural Model		708	52.90	16	-	.87	.89	.07

Note. RMSEA is omitted intentionally from the configural model fit because RMSEA is often inflated and provides an inadequate interpretation of model fit (see Steiger, 2008).

Figure 4. Standardized Parameters for Men by Proximity. Standardized parameter estimates for men in geographically close relationships ($N = 180$) are represented on left in bold whereas men in long-distance relationships ($N = 104$) are presented in normal font on the right.

As a second step in the multi-group model analysis, I assessed the parameter differences between models based Tabachnick and Fidell's (2013) recommendations. This process involved placing constraints on parameters, testing the model fit, assessing the difference in fit with Chi-square, and then releasing the parameter constraint. I continued this process for each parameter and then constrained all parameters to be equal between models. Please see Table 15 for these statistics.

Figure 5. Standardized Parameters for Women by Proximity. Standardized parameter estimates for women in geographically close relationships ($N = 285$) are represented on left in bold whereas women in long-distance relationships ($N = 139$) are presented in normal font on the right.

Table 15

Invariance Parameter Constrains for the Participants in Geographically Close Relationships and Women in Long-Distance Relationships

Baseline Model							
and Constrains	χ^2	df	$\Delta\chi^2$	Δdf	NFI	CFI	IFI
Baseline model	13.56	12			.95	.99	.99
All gamma and beta parameters equal	36.71	28	23.15	8	.94	1.00	1.00
All gamma, beta, and phi set equal	40.29	34	26.73	22	.86	.98	.98
Satisfaction to Commitment	21.50	14	7.94*	2	.93	.97	.97
Alternatives to Commitment	17.13	14	3.57	2	.94	.99	.99
Investment to Commitment	17.56	14	4.00	2	.94	.99	.99
Satisfaction to Trust	13.66	14	.10	2	.95	1.00	1.00
Alternatives to Trust	15.04	14	1.48	2	.95	1.00	1.00
Investment to Preference for Frequent Sex	13.67	14	.11	2	.95	1.00	1.00
Trust to Commitment	30.72	14	17.16**	2	.90	.93	.94
Preference for Frequent Sex to Commitment	16.76	14	3.20	2	.94	.99	.99
Constrained phi from Satisfaction to Alternatives	14.52	14	.96	2	.95	1.00	1.00
Constrained phi from Satisfaction to Investment	14.15	14	.59	2	.95	1.00	1.00

Satisfaction to Investments

Constrained phi from

Alternatives to

Investments	14.44	14	.88	2	.95	1.00	1.00
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Note. * $p < .05$, ** $p < .01$. All changes in chi-square and df are compared against the baseline model.

According to these findings, setting the parameters from satisfaction to commitment as equal among the three groups yielded a significant increase in chi-square, $\Delta\chi^2(2) = 7.94, p = .02$. Additionally, I found a significant increase in chi-square when constraining the beta parameter from trust to commitment as equal between the three groups, $\Delta\chi^2(2) = 17.16, p < .001$. I have support that there were differential loadings between the three groups for satisfaction to commitment and for trust to commitment. For men in geographically close relationships, satisfaction predicts commitment with standardized coefficient of .59 whereas satisfaction predicts commitment with standardized coefficients of .33 and .61 for women in geographically close and long-distance relationships, respectively. Between the models, trust predicts commitment with standardized coefficients of -.14, -.04, and -.08 for men in geographically close relationships, women in geographically close relationships, and women in long-distance relationships respectively.

Modeling Commitment for Men in Long-Distance Relationships

Because the hypothesized model and the amended model failed to fit the data for men in long-distance relationships, I explored other possible models that would better fit the data. I reevaluated the correlation tables and regression coefficients seen in Table 9

and 10, respectively, to gain a better understanding of these variables' relations with one another. In the second step of the analysis, trust and preference for frequent sex emerged as significant predictors of commitment whereas satisfaction, investments, and preference for frequent sex emerged as significant predictors of commitment. Based on the correlations, Preference for frequent sex only shared a bivariate relationship with trust in the relationship, $r(102) = .22, p < .05$. Likewise, trust, satisfaction, alternatives, and investments all share a direct bivariate relationship with commitment in the relationship. It is reasonable to assume that trust, satisfaction, alternatives, and investments could then serve as endogenous variables. Their preference for frequent sex would then mediate the relation between trust and commitment. Theoretically, the more trust for a partner would relate to a stronger urge to have more sex.

To begin modeling, I placed trust, satisfaction, alternatives, and investments as exogenous variables predicting commitment. I then set preference for frequent sex as an endogenous variable that mediated the trust and commitment relation. Specifically, trust predicts a preference for frequent sex and a preference for frequent sex then relates to increases in commitment. Given many of the variables lack normality, I used the general least squares to estimate the model. Although this model was identified and converged, it demonstrated subpar fit, $\chi^2(3) = 7.82$, RMSEA = .12, NFI = .89, CFI = .92, SRMR = .07, AGFI = .84. I reviewed the modification indices to find ways to improve the model fit. The greatest modification recommended was to add a parameter allowing satisfaction to predict preference for frequent sex. I added this parameter and reanalyzed the model. This second model provided an adequate fit for the data, $\chi^2(2) = 1.84$, RMSEA = .00, NFI = .98, CFI = 1.00, SRMR = .02, AGFI = .94. Furthermore, the addition of the

parameter provided a significant improvement in fit over the first model, $\Delta\chi^2(1) = 5.98$, $p = .01$. Please see Table 16 for all correlation coefficients between the variables and Figure 6 for all standardized coefficients.

Based on the model, I found that trust and satisfaction significantly predict a preference for frequent sex. Surprisingly, trust is positively related to a preference for frequent sex whereas relationship satisfaction is negatively related to a preference for frequent sex. Additionally, trust and alternatives to the relationship failed to predict commitment in the relationship. Trust and satisfaction, however, has a significant indirect effect on commitment through a preference for frequent sex. Furthermore, this model accounted for 66% of the variability in commitment of men in long-distance relationships.

Figure 6. Model Predicting Commitment for Men in Long-Distance Relationships. Correlations between exogenous variables are intentionally suppressed from the model. * $p < .05$. $N = 104$.

Table 16

Correlation Coefficients for Men in Long-Distance Relationships

Variables	Preference for Frequent Sex	Commitment	Trust	Satisfaction	Alternatives
Preference For Frequent Sex	-				
Commitment	.19*	-			
Trust	.21*	.56*	-		
Satisfaction	-.06	.70*	.58*	-	
Alternatives	-.06	-.28*	-.30*	-.20	-
Investment	.03	.71*	.54*	.62*	-.34*

Note. * $p < .05$.

CHAPTER IV

CONCLUSION

General Discussion

In Study 1, I hypothesized that I would replicate conceptually the works of Cameron and Ross (2007). Their study focused on how relational security indirectly influenced the relation between the negative affect by proximity interaction and commitment. Study 1 also allowed me to extend their research and assess if trust, preference for frequent sex, and obligatory consensual sex related to relationship commitment. I replicated the findings of Cameron and Ross and found that relational security significantly mediated the relation between the negative affect and proximity interaction and commitment for both men and women. This finding demonstrated that the participants' negative affect and proximity to their partners tended to relate to their endorsed faith, dependability, and expected support they perceived in the relationship. If participants endorsed higher degrees of negative affect and were further from their partners, we expected that there would be declines in faith, expected support, and dependability on their partners. These decreases, in turn, reduced the amount of commitment. This phenomenon was true for men and women alike.

More important, I found partial support for my second hypothesis. When I regressed commitment on trust, preference for frequent sex, obligatory consensual sex, and other components of trust (i.e., faith and expected support), and negative affect, I

found that components of trust and a preference for frequent sex emerged as significant predictors above and beyond just negative affect alone. Although Cameron and Ross (2007) found that negative affect was a significant variable for persistence in a relationship, the trust for one's partner and the amount of sex desired in the relationship trumped negative affect as a predictor of relationship commitment. Only women in geographically close relationships appeared to be immune to preference for frequent sex relating to the amount of commitment they had for their partners. Because I found support for these variables, I retained the preference for frequent sex and trust variables for Study 2 and I integrated them in subsequent models.

In Study 2, I addressed my third hypothesis. I predicted that the investment model would predict commitment differently for men and women in geographically close and long-distance relationships. I made this hypothesize based on the work of Pistole, Roberts, and Mosko (2010). Pistole and colleagues found that the satisfaction, the quality of alternatives, and relationship investments predicted commitment differently among a sample composed predominantly of women. Based on my regression analyses, my results conflicted with the Pistole and colleagues findings. Although they could only support satisfaction and alternatives as predictors of commitment for geographically close women, I found that satisfaction, alternatives, and investments strongly predicted commitment for women in geographically close relationships. For women in long-distance relationships, I found that all three based on commitment continued to predict relationship commitment. Pistole, Roberts, and Mosko found that only satisfaction and investments -but not alternatives- significantly predicted commitment for a predominately female sample. Although these findings are interesting, I cautiously make

comparisons with their work. They controlled for attachment style in their analyses whereas my studies omitted attachment styles. I omitted attachment style from these studies because Pistole and colleagues failed to find that attachment styles predicted commitment when satisfaction, alternatives, and investments were added to their models. With my larger sample, however, I am able to make strong comparative differences between men and women in geographically close and long-distance relationships.

One of the most interesting findings from Study 2 is when we applied the entire investment model and compared their predictions based on proximity and gender. In Study 2, another long-distance relationship paradox arose. The quality of alternatives did not predict commitment for men in long-distance relationships, whereas the quality of alternatives was a significant predictor for women regardless of proximity and for men in geographically close relationships. Anecdotally, one would assume that men in long-distance relationships would be more persuaded by attractive alternatives. Thus the relationship between the quality of alternatives and the commitment to the relationship would be strongly negatively related with one another. This finding appears to support prior research where partners defend their relationship from threats by minimizing their appraisal of alternative partners (Miller, 1997; Simpson, Gangestad, & Lerma, 1990). Dibble and Drouin (2014) also found that men in more committed relationships tended to minimize behaviors that would signal interest in other partners outside of the relationship. Perhaps simply by the nature of the relationship, men in long-distance relationships are more likely to ignore or avoid quality alternatives to the relationship to pursue their current relationship. This speculation certainly warrants further exploration.

I addressed my fourth hypothesis in Study 2. I hypothesized a model that incorporated trust and a preference for frequent sex with the investment model. The initial model proposed that satisfaction and a preference for frequent sex would serve as indicators to a latent 'general satisfaction' variable. Additionally, this latent variable, alternatives, commitment, and trust would all predict commitment in the relationship. Unfortunately, the hypothesized model had atrocious model fit and failed to provide a reasonable interpretation of the data. I believe that one of the primary issues stemmed from the lack of a correlation between relationship satisfaction and a preference for frequent sex. This finding seems counterintuitive and contradictory to prior researcher who found that sex and relationship satisfaction related highly with one another (Sprecher, 2002; Byers, 2005). Nonetheless, having an initial model that failed provided me an opportunity to reevaluate the model structure and create a model better suited to fit the data.

After making five revisions, I crafted a model that adequately fit the data and predicted commitment for men in geographically close relationships, women in long-distance relationships, and women in geographically close relationships. While holding the bases of commitment as the primary three exogenous variables, I found that satisfaction, alternatives, and investments all predicted commitment as expected. These findings are consistent with Le and Agnew's (2003) meta-analytic findings. Increases in reported satisfaction and relationship investments related to increases in commitment. Increased quality of alternatives in the relationships related to overall decreases in the reported commitment to one's partner. Unlike Study 1, however, there were drastic changes in trust's ability to predict commitment. When adding satisfaction, alternatives,

and investments to the model, trust lost its predictive ability to determine relationship commitment. Relationship satisfaction was highly related to trust and a substantially better predictor of relationship commitment in the hierarchical regression models and the structural models. This finding does not downplay the role of trust in relationships. Rather, it appears that relationship satisfaction is simply a better predictor of relationship commitment when trust is also being assessed in the models. In the future, researchers could test the unique role that trust and satisfaction play in relationship commitment. As suggested by Koranyi and Rothermund (2012), perhaps trust serves as a stabilizing mechanism for the relationship's perseverance. Satisfaction, on the other hand, may provide couples with an immediate motivation to continue the relationship.

Additionally, the quality of alternatives negatively related to trust for men in geographically close relationships. This finding demonstrates that men may degrade their perception of trust for their partners in the face of others who may satisfy their relationship needs. At the time of writing this manuscript, no published research was available through PsycInfo solely focusing on how the quality of relationship alternatives influenced relationship trust. Future studies are needed to investigate if this finding is replicable. Additionally, future research ought to explore the convergent and divergent validity between trust and satisfaction in addition to identify a possible temporal relation between the two variables.

The preference for frequent sex in the relationship also played an intriguing role in predicting commitment for men in geographically close relationships and for women in both geographically close and long-distance relationships. I found that a preference for frequent sex related more to relationship investments than relationship satisfaction.

Additionally, this relation appeared to indirectly influence the link between investment and commitment. Individuals that are more invested in their relationships tend to desire more sex with their partners; this desire for more sex in turn relates to increases in commitments. This finding is reminiscent of many evolutionary theories that place sexual activity as a core tenant of investments in a relationship (Buss & Schmitt, 1993). It is reasonable to expect that people who have invested a substantial amount of time and effort into their relationships are more likely to desire more sex from their current partner. Conversely, individuals who want more sex from their partner are motivated sexually to commit more to the relationship and to behave in ways congruent with continuously maintaining the relationship.

There were surprisingly few differences between the amended model for men in geographically close relationships, women in long-distance relationships, and women in geographically close relationships. However, men in long-distance relationships needed a completely separate model to predict commitment. It appeared that the mechanisms and factors that influenced relationships operated quite differently for men in long-distance relationships. Comparatively, there were only subtle model differences between men in geographically close relationships, women in long-distance relationships, and women in geographically close relationships. For example, the quality of alternatives for men in long-distance relationships did not predict relationship commitment. This finding deviated from most findings that reported strong negative relations between the quality of alternatives and commitment (for examples, see Le & Agnew, 2003). In my study, this finding may have occurred for a few different reasons. Procedurally, I required participants to be in a romantic relationship for at least two months before participating.

This method may have restricted the range of participants and thus prevented men in newly terminated long-distance relationship from participating. Theoretically, men in long-distance relationships may be content with their partners and disparage their reported quality of alternatives. Additionally, it is possible that men that perceive few relationship alternatives may be more inclined to maintaining a long-distance relationship simply because the available alternatives are not present. Almost by default, men remain in the relationship because there are no other possible partners that may fulfill their relationship needs.

Additionally, relationship investments did not significantly relate to preferences for frequent sex. Trust and satisfaction, however, related to these men's preference for frequent sex. The more they trusted their partners, the more they tended to want sex from their partners. Satisfied men in long-distance relationships tended also to want less sex from their partners. With physical distance separating these men from a more sexual relationship, it is no surprise to find that more satisfied men also did not emphasize wanting more sex in the relationship as heavily as less satisfied men. Having a stronger preference for more sex did relate positively to relationship commitment. This finding suggests that there are competing motives to maintaining men's commitment to long-distance relationships. It seems that men in long-distance relationships can be satisfied with wanting less sex from their partners or be less satisfied and desiring far more sex in the relationship.

For men in geographically close relationships, women in long-distance relationships, and women in geographically close relationships, there were only two significant differences between the parameters for the models. Specifically, there was a

difference in how satisfaction predicted commitment and how trust predicted commitment among the three groups. The strength of the relationship between satisfaction and commitment to the relationship was weakest for women in geographically close relationships compared to men in geographically close relationships and women in long-distance relationships. This finding suggests that other relationship factors may be prioritized when committing to the relationship. For women in geographically close relationships, investments surfaced as the most predictive factor of commitment, followed by satisfaction, and trailed by the quality of alternatives. On the other hand, commitment for long-distance women seems to be more heavily influenced by satisfaction with quality of alternatives and relationship investments trailing behind in order of importance.

The only other parameter that differed between the models was for trust predicting commitment. As an unanticipated finding, I discovered that trust negatively predicted commitment for men in geographically close relationships when satisfaction, alternatives, and investments were included in the regression models and the path analysis models. Without the inclusion of satisfaction, alternatives, and investments, trust did significantly predict relationship commitment for men in geographically close relationship. Although Rusbult and colleagues (1998) used the same measure for trust and found similar correlations compared with my sample, they made no mention of trust resulting as a negative predictor of relationship commitment when including the investment model scale. I am hesitant to support the notion that increases in trust could possibly lead to decreases in relationship commitment; theories neither support nor provide justification for such a counterintuitive finding. Given the high correlations

between trust and satisfaction, I speculate that this outcome may be more the result of the statistically dreaded ‘bouncing betas’ rather than a reflection of actual relationship behavior. To clarify this point, while the direct effect between trust and commitment in the models is estimated as small and often negative, this direct parameter does not account for the indirect effect that trust has on commitment through satisfaction. Given my models were generated from a cross-sectional sample, we can follow the parameters back to estimate possible spurious and indirect effects (Cohen, Cohen, West, & Aiken, 2003). For example, for men in geographically close relationships, if we follow the estimated parameters from trust to satisfaction and then from satisfaction to commitment we would find that the indirect effect of trust on commitment would produce a standardized – and presumably significant – indirect effect = .42. I find similar indirect effects when we follow the paths back for women as well. Therefore, trust can still predict commitment. The positive trust to commitment relationship happens to be indirect given the current model structure.

Limitations and Future Directions

Like all survey research, the participants’ self-reported data and possible impression management may limit these findings. Despite these issues, I took precautions to ensure participants knew their data would be handled confidentially. Specifically, there were prompts throughout the survey to assure participants their information was confidential remind them to respond honestly to the questions. To improve upon the current methods, researchers should consider identifying and measuring finite relationship behaviors. Seeing that Wieselquist, Rusbult, Foster, and Agnew (1999) found that trust and commitment increased when partners forego self-interest, perhaps a

checklist or inventory to assess how frequently or how intense a partner's willingness to sacrifice for the relationship would be beneficial. Additionally, I used a cross-sectional design that limits our findings to a snapshot of current self-reported responses. Assessing the proposed models and the investment model using longitudinal designs may provide researchers with a more thorough understanding about how robust or volatile these models may be over time (Agnew, Arriaga, & Wilson, 2008).

Knowing that many relationship researchers require participants to have several months experience with their current partner, it is possible that sampling techniques restrict the sampled long-distance couples to partners with increased loyalty and other possible pro-relationship traits. That is, it is possible that the population of individuals in long-distance relationships may experience far more relationship terminations, significantly less relationship satisfaction, and higher instances of infidelity. The sampling parameters for long-distance relationship research may cause a range restriction where underperforming or unfulfilling long-distance relationships are either not sampled or the relationship ended before they were able to participate in the research. Short of devising a true experiment and randomly assigning couples into long-distance or geographically close relationships, these points may remain merely speculative and have neither a definitive answer nor solution. Nonetheless, these points should be kept in mind.

Unlike most of the published long-distance relationship research that uses undergraduate populations to study the differences of long-distance relationships, my studies used a much larger sample of participants throughout the United States who used Amazon.com's MTurk. My findings are not limited to undergraduate that recently begun relationships. These sampling methods not only provided a more nationally

representative sample but also surveyed significantly older participants from a wider variety of relationship statuses and sexual orientations. Additionally, the attention checks used in Study 2 allowed me to quickly identify and remove participants who randomly responded or answered with answer sets (for example, answering with 5's to all items or answering with a 2, 3, 4, 2, 3, 4 pattern throughout the survey). This process eliminated participants who blatantly had no regard for honestly answering questions.

To date, this research is second only to Pistole, Roberts, and Mosko's (2012) study in assessing the predictive ability of the investment model between geographically close and long-distance couples. More importantly, this research includes the first study that compared gender differences in addition to differences in relationship proximity. Although the trends do not match Pistole, Roberts, and Mosko's (2010) findings, there were still meaningful differences between their research findings and the current study. For example, they found that investments did not predict commitment for participants in geographically close relationships and that the quality of alternatives was a non-significant predictor of commitment for a predominately white, female sample. They acknowledge, however, that their sample was limited in size and diversity. Additionally, they worked diligently to maintain the minimal sample size to ensure their analyses were not underpowered. In the present study, I build on their initial findings with a larger, more diverse sample and provide segmented analyses to compare gender differences in predicting relationship commitment. Although Pistole, Roberts, and Mosko grouped men and women together in their analyses, analyzing men and women separately resulted in alternatives as a significant negative predictor for women in long-distance relationships

and the quality of alternatives as a non-significant predictor of commitment for men in long-distance relationships.

There were also meaning model differences between men in long-distance relationships, and women in both proximity types. In particular, men in long-distance relationships needed an entirely different model to predict their relationship commitment. Additionally, satisfaction in the relationship related less to commitment for women in geographically close relationships compared to women in long-distance relationships and men in geographically close relationships. To improve the available long-distance literature, I highly recommend researches make a concerted effort to identify and incorporate well-validated relationship measures and theories into the study of long-distance relationships. While previous findings undoubtedly provide a wealth of understanding of the dynamics of long-distance relationships, researchers may also find that long-distance relationships and newly initiated long-distance relationships provide researchers with a unique opportunity to assess how relationship proximity, relationship stress, and relationship conflict may moderate the grand relationship theories.

Concluding Remarks

Guldner (2003) reported that long-distance relationships were becoming an increasingly popular option for couples. My data confirms this findings to be true among my sample as well. With 61.5% of participants have previously been in a long-distance relationship and 76.2% of participants currently being in or having had previous experience with a long-distance relationship, it is likely that most people will find themselves in a long-distance relationship at some point in their lives. Given this finding, it is naive to believe that long-distance relationships do not play a formative role in most

people's romantic lives and romantic maturity. Not only are most peoples' romantic lives influenced in some way by a history of long-distance relationships or a current long-distance relationship partner, but relationship theories like the investment model differ for couples based on not only the proximity also according to gender differences.

Furthermore the role of sex in long-distance relationships is certainly an important and influential factor when considering commitment in these typically taboo relationships.

Although no one-size-fits-all recommendation can improve the quality of relationships, this research provided insight to how different relationship mechanisms and factors may influence commitment whether near or far.

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